JULY 13, 1959

PAPER TRADE JOURNAL

Large AC Motors: a selection guide for drive applications

Drying Rate Gauge: measuring profile in machine direction

Concrete Floors: care and feeding for greater usage

Salesman's Training: NEPCO's appoach to solid background

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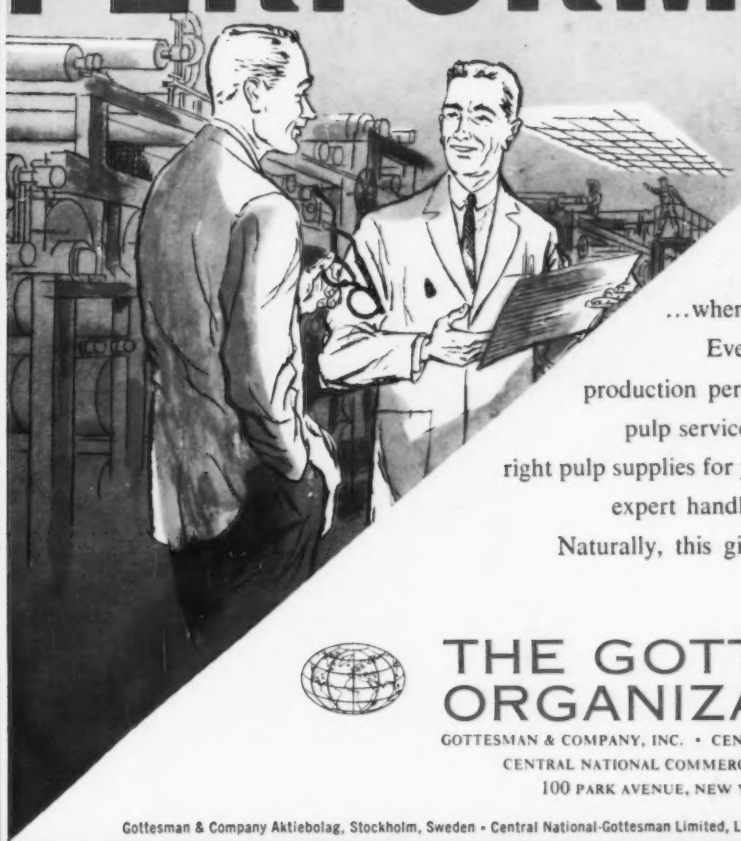
PERFORMANCE



...when Gottesman enters the picture! Everything is geared to make good production performance easy with Gottesman pulp service. You are assured not only the right pulp supplies for your specific needs, but prompt, expert handling in a wide range of grades. Naturally, this gives you superior performance!

Established 1886

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CENTRAL NATIONAL COMMERCIAL COMPANY, INC.
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WOOD PULP G

PULP PAPER EXPORT CNC

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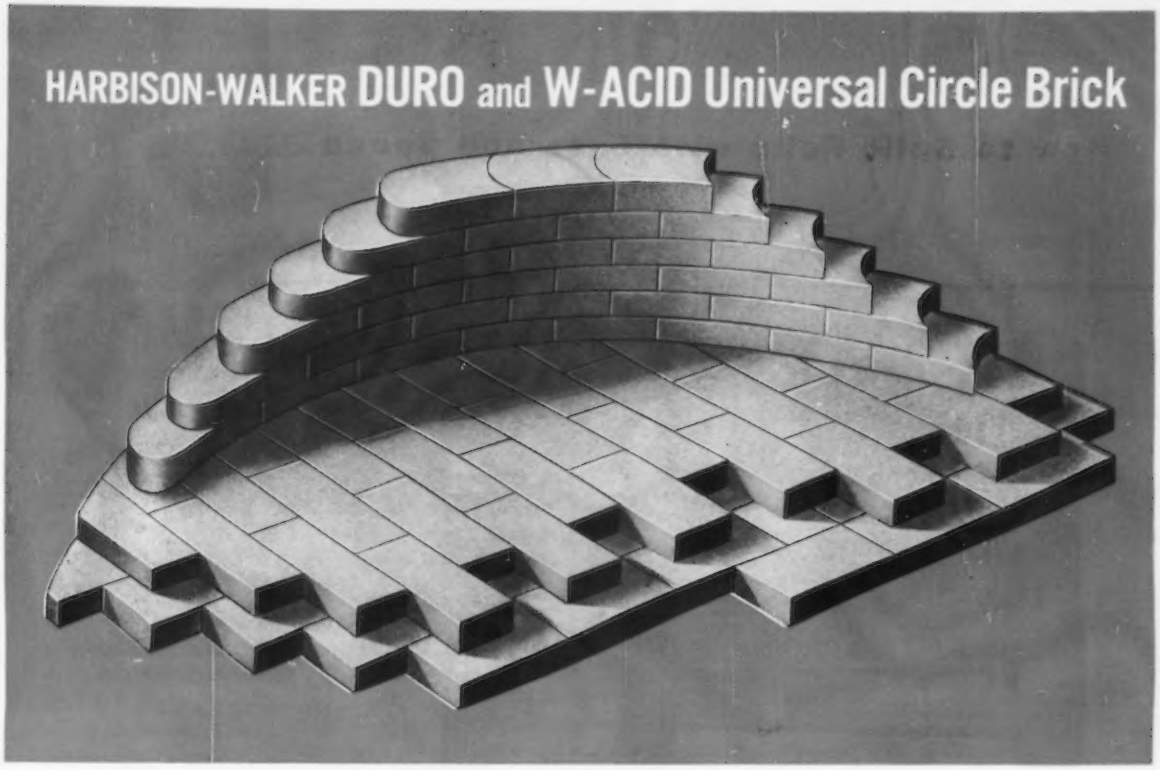


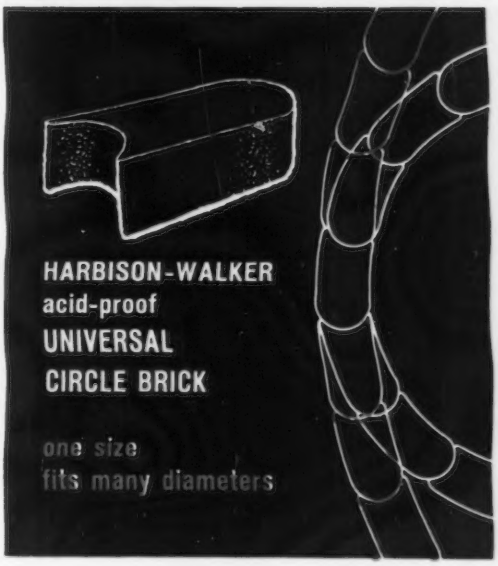
Long-lasting linings for dissolving and storage tanks

Dense, vitreous, corrosion resistant linings, made with Harbison-Walker DURO (Penna.) or W-ACID (Ala.) Universal Circle Brick are long-lasting and economical. These specialized refractories are molded at high pressure and under a high vacuum from materials of extremely low flux content. High temperature firing converts the ceramic body into stable minerals, resistant to corrosive chemicals and alkaline solutions of moderate concentrations at practically all working temperatures.

The unique design of Harbison-Walker Universal Circle Brick provides both joint-tightness and flexibility. One size fits many tanks, a money-saving feature especially important at plants having tanks of various diameters.

H-W ALKAMORTAR, a smooth working mortar which is highly resistant to caustic solutions, is used with special benefit for installing the linings of these tanks.

Write for complete information about these Harbison-Walker products.



Harbison-Walker Refractories Company
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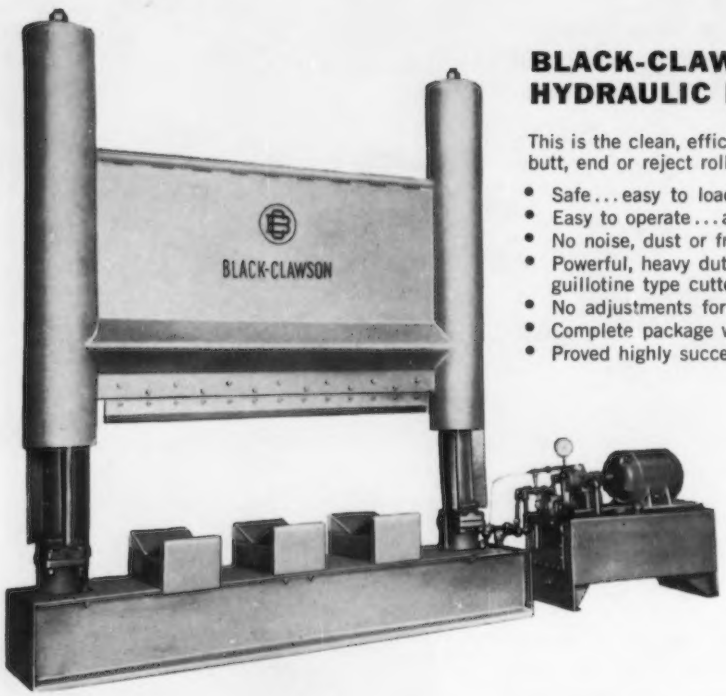
World's Most Complete Refractories Service

How to Split Rolls with Ease and Speed



BLACK-CLAWSON HYDRAULIC ROLL SPLITTER

This is the clean, efficient, modern way to split pulp rolls, butt, end or reject rolls for fast, economical repulping.

- Safe... easy to load
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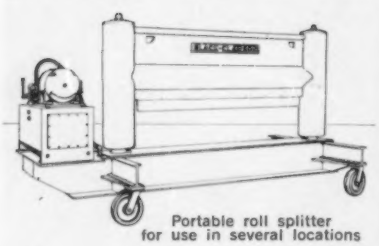
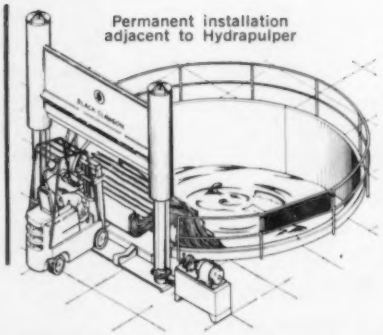
- No noise, dust or frustration
- Powerful, heavy duty hydraulically actuated guillotine type cutter
- No adjustments for variations in roll diameters
- Complete package with power unit, base and controls
- Proved highly successful in many mill installations

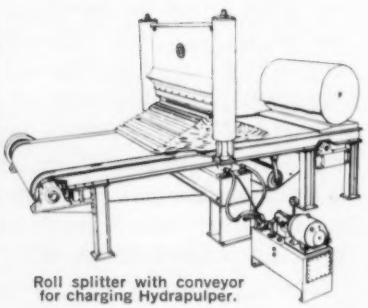
Write or phone the Shartle Division for complete details.



Portable roll splitter for use in several locations



Permanent installation adjacent to Hydrapulper



Roll splitter with conveyor for charging Hydrapulper.

SHARTLE DIVISION STOCK PREPARATION EQUIPMENT

THE BLACK-CLAWSON COMPANY

SHARTLE DIVISION, MIDDLETOWN, OHIO

Executive Offices—250 Park Ave., New York, N. Y. • Pandia Division, Pulp Mill Equipment, Hamilton, Ohio • Shartle Division, Stock Preparation Equipment, Middletown, Ohio • Paper Machine Division, Paper and Board Machines, Watertown, N. Y. • Dilts Division, Converting Machinery, Fulton, N. Y. • Black-Clawson (Canada) Ltd., Canadian Sales & Manufacture, Montreal, P.Q. • Black-Clawson International Ltd., British-European Sales and Manufacture, London, England • District Sales Offices, Atlanta, Ga.; Downingtown, Pa.; Portland, Ore.; Appleton, Wis.; Hamilton, Ohio

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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49 West 45th Street, New York 36,

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Published by Lockwood Trade Journal Co., Inc., at 34 North Crystal St., East Stroudsburg, Pa. Second class postage paid at East Stroudsburg, Pa. Printed in U.S.A. Copyright 1959 by Lockwood Trade Journal Co., Inc. Paper established Feb. 17, 1899, combined with Paper Trade Journal Nov. 16, 1899. Paper established Sept. 21, 1910, combined with Paper Trade Journal February 19, 1926. All rights to the above titles reserved. Also publishers of Lockwood's Annual Directory of the Paper and Allied Trades.

Week of JULY 13, 1959—Vol. 143, No. 28

TRENDS 15

NEWS OF THE WEEK 17

FEATURE ARTICLES

Trouble-Free Concrete Floors: How to Get Them And Keep Them 26

Non-Destructive Measuring of Drying Profile In Machine Direction 32

Nekoosa-Edwards Gives Salesmen Solid Background In Papermaking 36

Application of Large AC Motors to Pulp And Paper Mill Drives 42

PAPER PEOPLE 20
NEWS OF CONVERTERS 47
FIGURES OF THE WEEK 51
NEW EQUIPMENT & SUPPLIES 52
NEW LITERATURE 62
NEWS OF SUPPLIERS .. 64
PRICES OF FIBERS ... 67
CLASSIFIED ADVERTISING 71
ADVERTISERS INDEX .. 76

REMEMBER THESE DATES

September 9-11. TAPPI Fundamental Research Conference, Institute of Paper Chemistry, Appleton, Wis.

September 21-23. Paper-Plastics Conference, Edgewater Beach Hotel, Chicago, Ill.

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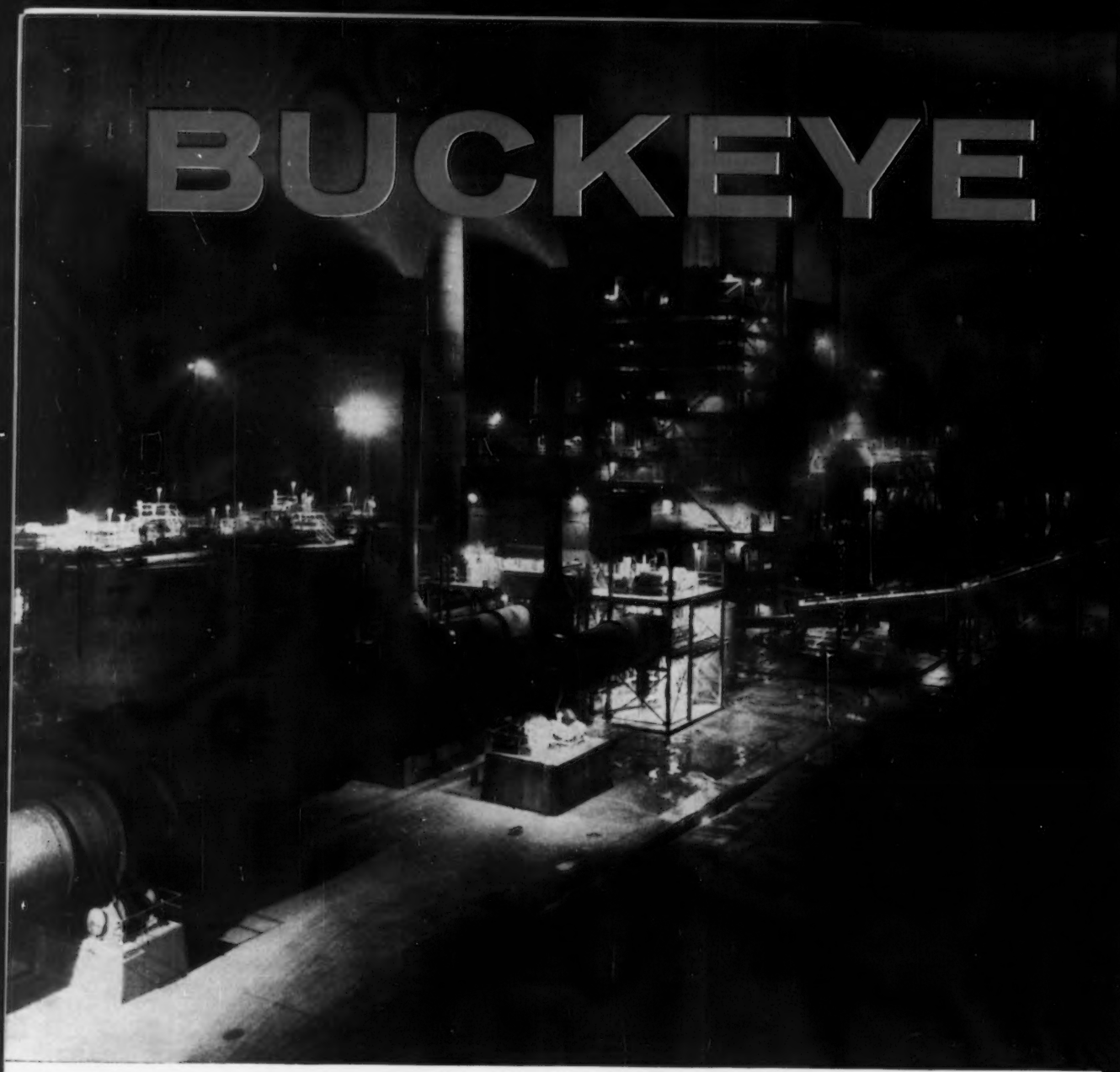
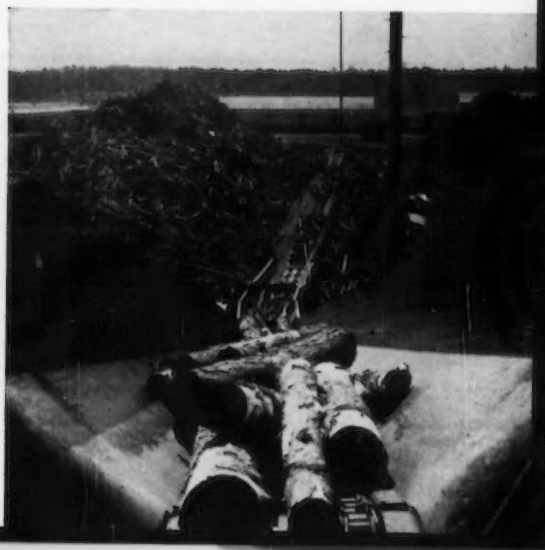
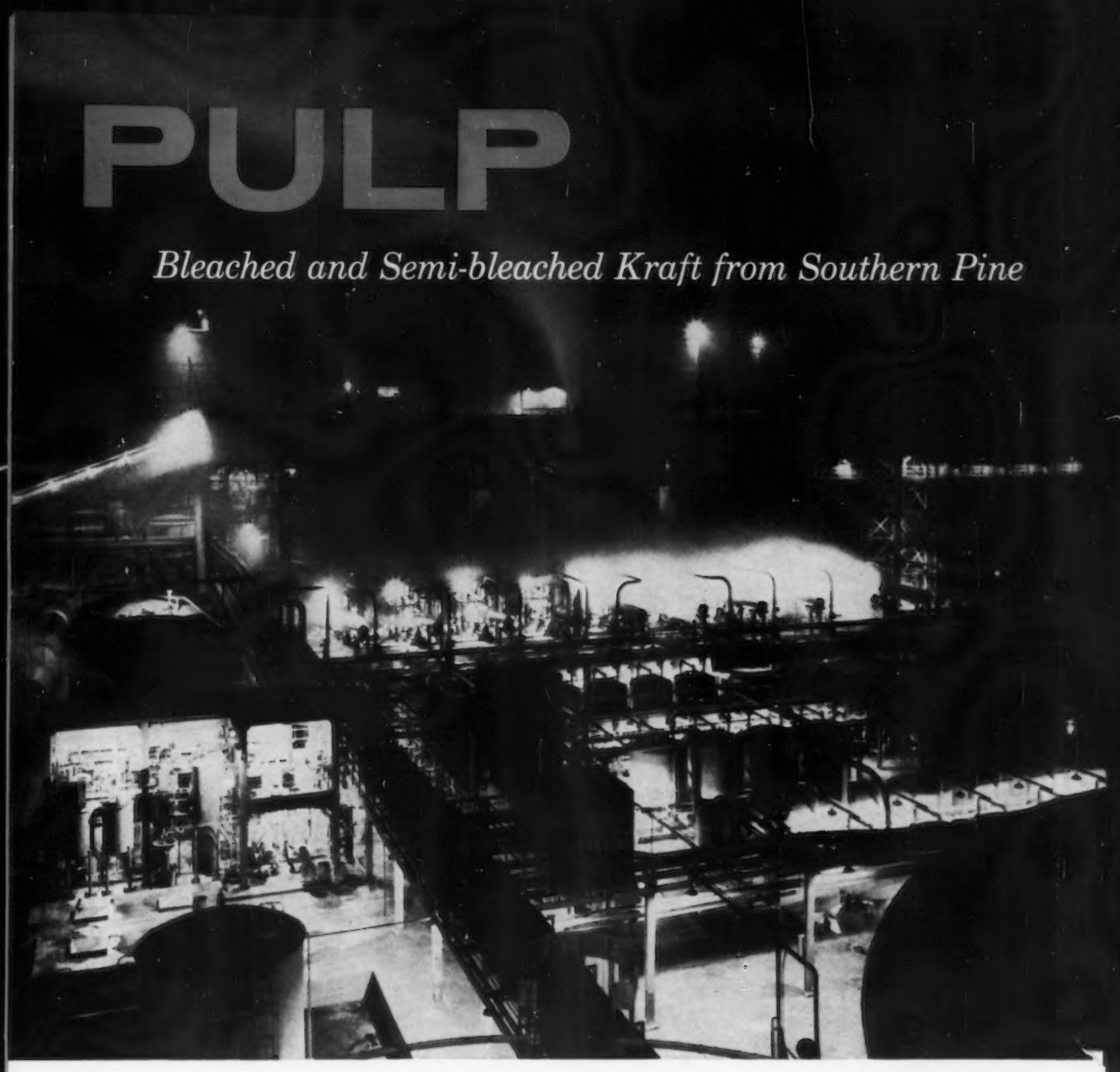
BUCKEYE



Buckeye doubles plant capacity at Foley, Florida





Both units utilize double-screening and improved 8-stage bleaching

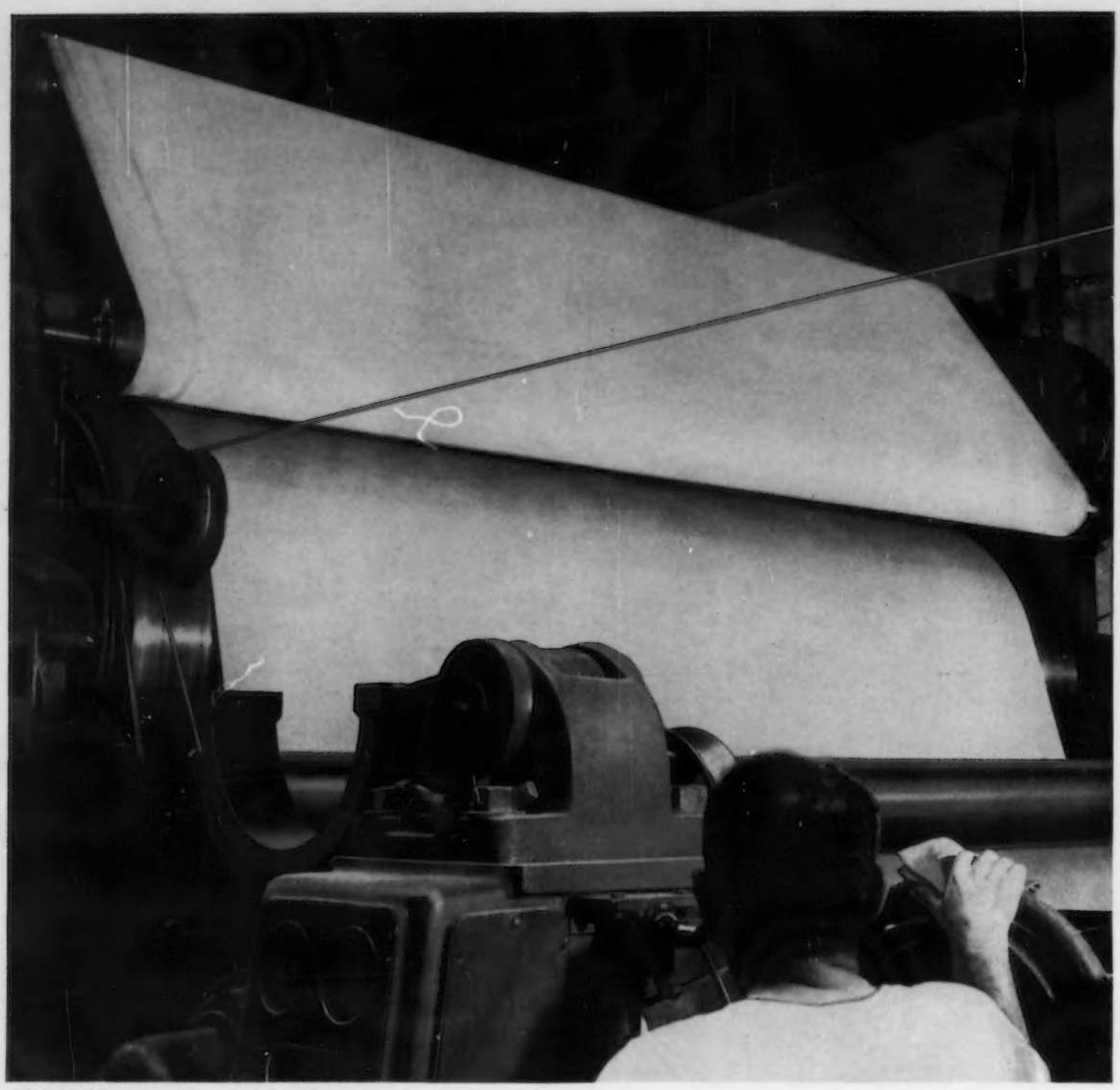
Only the latest and most advanced equipment has been utilized in Buckeye's newly completed expansion at Foley, Florida. Throughout the entire mill, nothing has been spared in design, equipment, and quality controls for producing the finest Southern Kraft. New features include special double-screening to insure pulp cleanliness followed by a unique 8-stage bleaching process to give top brightness and high strength.

The expanded production facilities are backed by Buckeye's extensive research in both pulp technology and forestry. This research program, unsurpassed in the industry, has helped Buckeye attain new levels of pulp strength, cleanliness, and brightness today . . . promises even higher levels tomorrow.

Let us show you why Buckeye now, more than ever, is the No. 1 source for the finest in Southern Kraft.

BUCKEYE CELLULOSE CORPORATION, Memphis 8, Tennessee

Wood pulp plant at Foley, Florida • Cotton linters plant at Memphis



THE KRAFT IN BAG MAKING—Every sixth paper grocery bag used in the United States is made by Gulf States Paper Corporation of Tuscaloosa, Alabama and distributed through their Sales Division, The E-Z Opener Bag Company. Almost 80% of the 400 to 500 tons of paper produced each day at Gulf is utilized for the production of paper bags. The heavy kraft paper required for this purpose is made on a battery of high speed paper-making machines, typical of which is the Number 3 Machine. It is 234" wide, operates at a speed of over 1000 feet per minute, and is fitted with Mount Vernon Dryer Felts.

This is another example of how fabrics made by Mount Vernon Mills, Inc. and the industries they serve, are serving America. Mount Vernon engineers and its laboratory facilities are available to help you in the development of any new fabric or in the application of those already available.

PRE-STRETCHED—All Mount Vernon dryer felts are available pre-stretched and pre-shrunk, with or without clipper seams.

UNIFORMITY Makes The Big Difference In Industrial Fabrics

Mount Vernon Mills, inc.

A LEADER IN INDUSTRIAL TEXTILES

TURNER HALSEY COMPANY *Selling Agents*

Main Office: 40 Worth Street, New York, N. Y.

Wood pulp plant at Foley, Florida — Cotton linters plant at Memphis

STEPHENS-ADAMSON

BULK LOADING EQUIPMENT REVOLUTIONIZES PROCESSING WOOD PULP FOR SHIPMENT

A new concept of handling and shipping wood pulp in bulk has been developed at The Elk Falls Division of Crown Zellerbach Canada Limited in British Columbia. **S-A** engineers designed and built a traveling gantry, a ship loading boom conveyor and a centrifugal-action ship trimmer unit to move wood pulp in semi-liquid or "noodle" form from storage areas to the hold of a specially-designed deepsea tanker for shipment to a paper mill.

The orthodox method of shipping pulp requires a plant facility to process the pulp into dry sheets which are then shipped as palletized bundles. "Noodle pulp" pours through the boom spout and is evenly trimmed and loaded into the ship's hold at the bulk loading rate of 750 tons per hour. At unloading point, pulp is mixed with water and pumped out as a liquid.

Whether your handling problem involves wood pulp, wood chips or logs, **S-A** engineers can very likely help you increase efficiency in your plant operations.

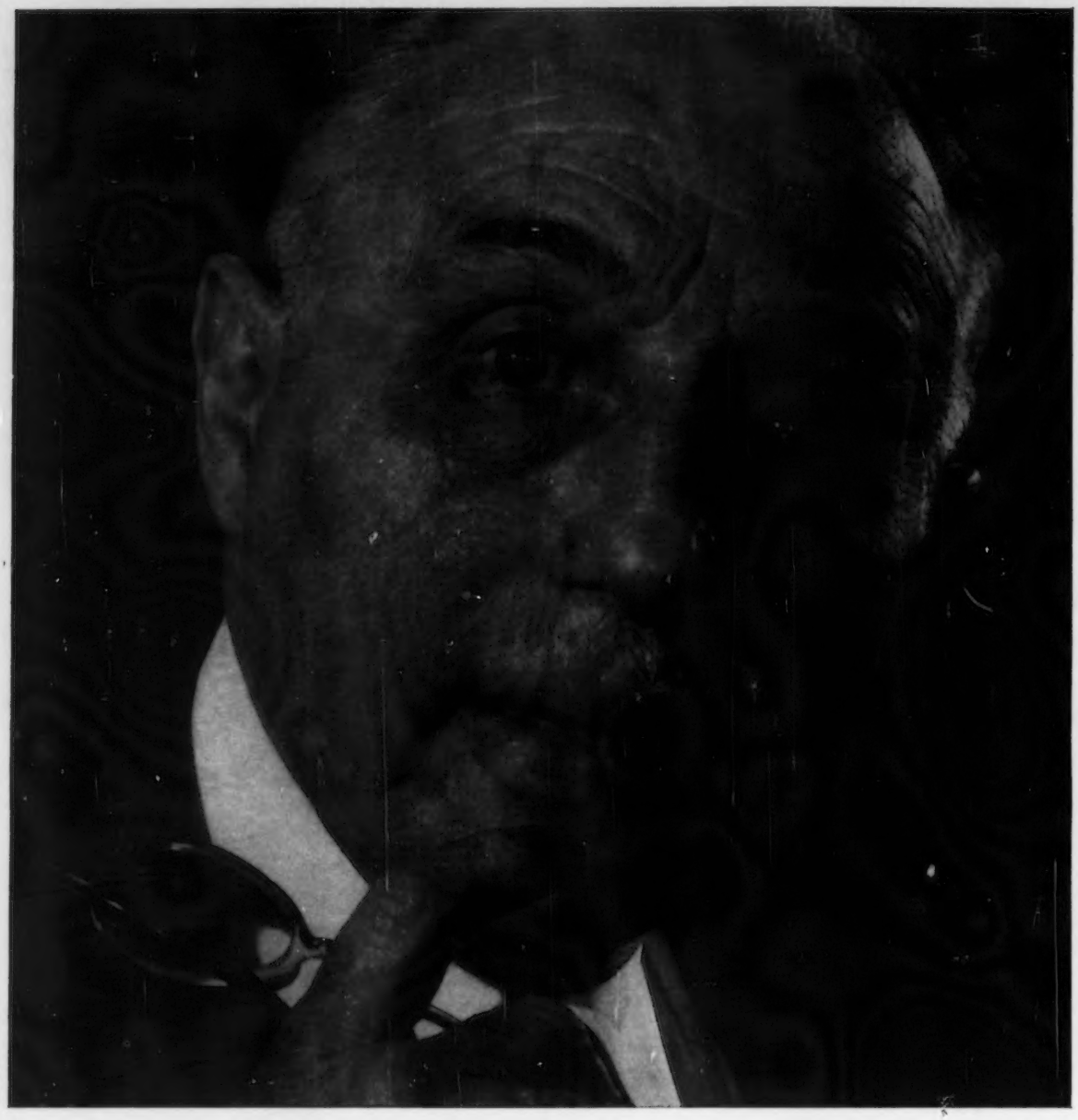
STEPHENS-ADAMSON centrifugal-action ship trimmer unit loads and evenly trims "noodle pulp" into a ship's hold at the rate of 750 tons per hour.

WRITE FOR BULLETIN 951

S-A
MATERIALS HANDLING PRODUCTS
SEALMASTER BALL BEARING UNITS

ENGINEERING DIVISION
STEPHENS-ADAMSON MFG. CO.
GENERAL OFFICE & MAIN PLANT, 69 RIDGEWAY AVENUE, AURORA, ILLINOIS

PLANTS LOCATED IN: LOS ANGELES, CALIFORNIA • CLARKSDALE, MISSISSIPPI
BELLEVILLE, ONTARIO



"You can't top TiO_2 as a source of brightness, whiteness and opacity for paper products. We've tried—it can't be done. I don't think you can top Du Pont 'Ti-Pure'* among TiO_2 pigments, either. It's always high in quality, uniform and delivered promptly. Du Pont Technical Service is good, too . . . they had a man working on our beater additions for two days straight once. I understand Du Pont is expanding production facilities for 'Ti-Pure' to take care of future increased demands. Good!"

(Based on an actual conversation between a Du Pont Representative and a customer.)

▶ Talked to *your* Du Pont Pigments Representative lately? He'll be glad to point out the "extras" you get with Du Pont "Ti-Pure" titanium dioxide pigments. Call him today! E. I. du Pont de Nemours & Co. (Inc.), Pigments Department, Wilmington 98, Delaware. In Canada: Du Pont of Canada Limited, P.O. Box 660, Montreal, Quebec.

TI-PURE®
Titanium Dioxide Pigments

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BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

*DU PONT'S TRADEMARK FOR ITS TITANIUM DIOXIDE PIGMENTS

HOW YARWAY BLOW-VALVES REDUCE DIGESTER OPERATING COSTS

Faster blow

Valve by valve comparisons show Yarway Seatless have up to 100% greater discharge area than some other digester blow valves of the same nominal pipe size. Result—faster discharge, lower pressure drop.

Cleaner blow

Steam purging is unnecessary since Yarway's seatless hollow-sliding-plunger design eliminates all pockets where wood chips or tramp metal can hang up.

Tighter seal

Yarway's tight seal (spring-loaded packing rings above and below inlet port) prevents loss of cooking liquor and insures thorough cooking of pulp.

It all adds up to reduced blowing time, more cooks per day, greater output of pulp—LOWER DIGESTER OPERATING COSTS.

Send for free bulletin on the selection, operation and maintenance of digester blow-valves.

Yarway Blow-Valve in open position. Note full, free discharge.

REMOTE-CONTROLLED, ELECTRIC OR HYDRAULIC OPERATION

Yarway Digester Blow-Valves may be controlled from any remote point. Choice of motor-unit or hydraulic-cylinder operation.

YARNALL-WARING COMPANY
100 Mermaid Ave., Philadelphia 18, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

YARWAY DIGESTER BLOW-VALVES

Correct Lubrication in Action...

Mosinee Paper Mills

Here logs are de-barked before being conveyed to chipper. Mosinee Paper Mills Company is a foremost manufacturer of specialty papers for industry— every year produces enough cable-wrap paper, alone, to encircle the earth twenty-nine and a half times.

Mobil

Complete Engineering Program
Proved Petroleum Products

Mobil

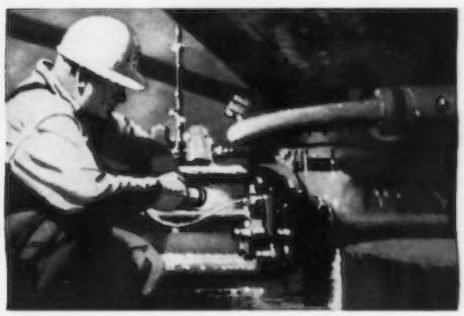
'wrap up' $26,868 saving

Here's how a Mobil Program of Correct Lubrication Helped this Leading Paper Company Cut Maintenance Costs . . . Improve Production!

Production steps at the Mosinee Paper Mills Company range from de-barking logs to producing specialty papers of many types. Machines and processes are complex and widely varied. Yet, this company has kept maintenance costs to a minimum, solved production problems of all kinds with the help of a Mobil Program of Correct Lubrication.

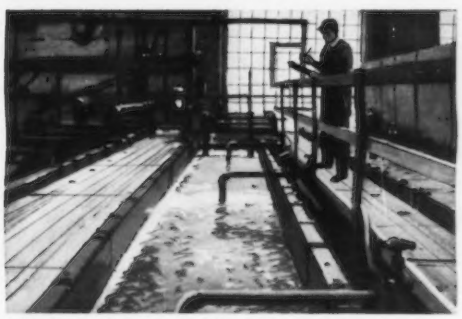
In addition to supplying a full line of lubricants and paper processing products, Mobil offers this company complete lubrication engineering service. Trained engineers work closely with plant supervisors—make cost-cutting engineering and lubrication suggestions. Machines are put on a rigid lubrication schedule. Plant oilermen are trained in Mobil "clinics" to qualify them to serve as machine inspectors. These and many other exclusive Mobil services helped Mosinee save thousands of dollars a year—$26,868 so far.

This is Mobil Correct Lubrication in Action. Perhaps it can help you reduce maintenance costs, improve profits. Why not contact a Mobil representative and find out?

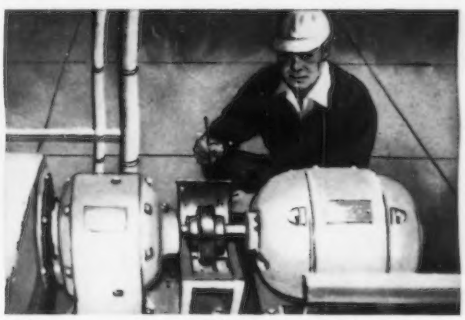


Valves on pulp digester were failing once a month . . . required costly repairs. Mobil engineer suggested engineering improvement in automatic lubrication system that cut valve failures 50%. Savings in repairs, maintenance and production amounted to $14,949 in 33 months.

Reducer drive gears on slurry agitator, due to heavy loads on impeller, had to be dismantled every six months for adjustment. Mobil recommended lubricant with high-load capacity. Galling was arrested . . . dismantling eliminated . . . $216 saved on inspection cost alone.



Rollers and cams that vibrate flat screens presented lubrication problem. Vibration "threw off" lubricants . . . exposing parts to corrosion by processing liquids. Mobil recommended a protective shield and a lubricant that didn't "throw off." This procedure saved $966 a year.



Flexible couplings were failing at rate of three per year. Pump seal replacement time averaged 1½ hours per shift. Mobil recommendations drastically reduced coupling failures . . . eliminated over 1300 manhours of seal replacement time . . . saved $5,727 in twenty-four months.

Correct Lubrication

Another reason You're Miles Ahead with Mobil!

The DRYER FELT
they are all talking about—

The SCAPA
Synthetic Reinforced Cotton Dryer Felt
has been granted 2,882,933
U. S. Patent No.

Types 1166-S, 1164-S, 1464-S
2070-S and 2064-S are
Drying **more** paper **better**
every day

SCAPA known throughout the world wherever paper is made

Morey Paper Mill Supply Company
309 SOUTH STREET, FITCHBURG, MASSACHUSETTS

Sole U. S. Agents for

SCAPA DRYERS, INC.
WAYCROSS, GEORGIA

Trends

Pulp Production and Sales Up

Production of wood pulp was 21% higher in May than a year ago, according to the U. S. Pulp Producers Ass'n. Output for the first five months was up 14%. Market pulp shipments to the domestic market were up 9%, but foreign shipments were off 4%.

Sales and Earnings Of Our Industry

Sales of companies in the paper and allied products industry totalled $10,658 million in 1958 according to a report released at the end of June by the Federal Trade Commission-Securities Exchange Commission. This total was 3% above the figures they had reported earlier, indicating that sales last year were a little above the 1957 total and second only to the high made in 1956.

Labor Shortage Indicated for This Fall

The labor market seems to be tightening up considerably. There is every indication that by this fall there will be a serious shortage of skilled workers.

Set-Up Boxes Hold Gains

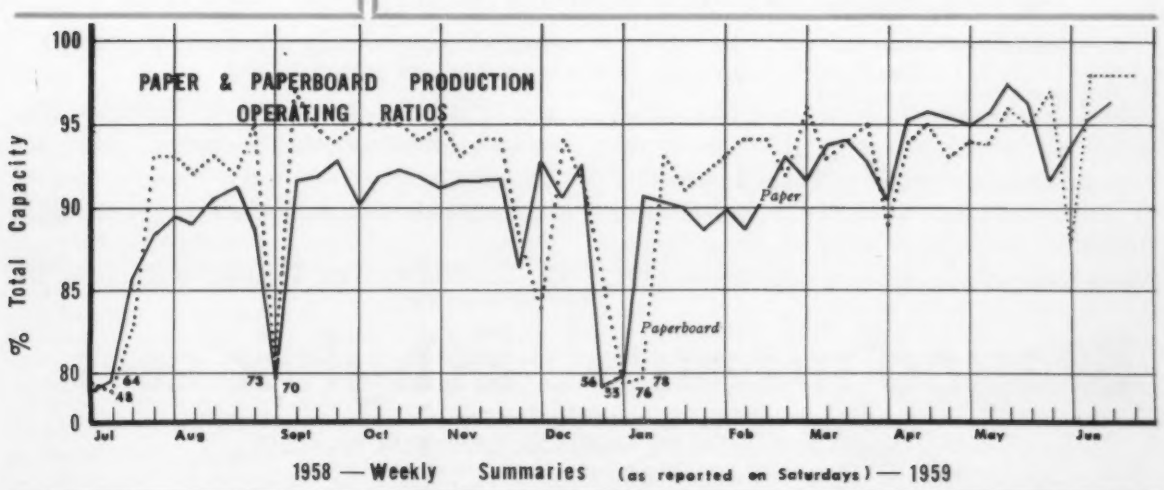
Set-up box shipments for the first five months ran 5% above last year as did the shipments for May. Orders are ahead of January-May last year by 13.5%.

Waste Paper Prices Moving Up

Waste paper prices reflect paper and board mill activity. Prices of a number of waste paper grades moved up the first of July at a time when historically demand falls off.

Urge Lowering of Tariff Barriers

The European Common Market is a major step toward political unity and economic growth in Europe which can strengthen the entire Free World, states a recent report of the U. S. Committee for Economic Development (CED). To help integrate the Common Market into the world economy and to avoid possible discriminatory effects upon other nations, the Committee statement urged that the U. S. should take the lead in a worldwide movement for the general reduction of barriers to trade.



Two Outstanding Success Stories

...thanks to your increased demand for Stayco Starches and Ethylex Gums

As a beater additive, surface size, calendar size, or coating adhesive—wherever top results are required —Staley's versatile products, Stayco and Ethylex, are second to none.

Use STAYCO Starches for wet-end addition, surface sizing, calender sizing, or coating—wherever you need an oxidized starch of optimum dispersibility ... stable viscosity and clarity ... high binding strength ... and *superior brightness*. For additional information, write for Technical Data Sheet No. 104.

Use ETHYLEX Gums for their unsurpassed film-forming and water-holding properties ... minimum tendency to retrograde at any viscosity level ... low gelatinization temperatures ... maximum strength ... flexibility ... transparency. For more information, write for Technical Bulletin No. B7.

Stayco® STARCHES **Ethylex® GUMS**

A. E. STALEY MFG. CO., DECATUR, ILLINOIS

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Kansas City · New York · Philadelphia · San Francisco · St. Louis

PAPER TRADE JOURNAL

WEEK OF JULY 13, 1959

National Gypsum Plans Big Expansion

National Gypsum Co. has announced the most ambitious expansion program in the company's history—a five-year, $125-million plan for new plants, acquisitions and increased production at existing facilities throughout the country.

National's plans for new plants call for additional paper mills to take care of expanding paper requirements. National currently operates five paper mills in the United States.

KVP Expansion at Espanola Involves New B-C Machine

The KVP Co. Ltd. has approved plans for a 15,000 ton per year expansion of specialty paper production at its mill in Espanola, Ont., involving a new paper machine. The project calls for a new 136-inch combination Yankee paper machine, a complete stock preparation system, and a flexiblade off-machine coating unit. The paper machine will be designed for production of machine glazed and machine finished papers, particularly in the bread wrapping and waxing field.

A contract for supplying the major equipment has been awarded to Black-Clawson (Canada) Ltd., Montreal. Decisions concerning the design details for much of the equipment were made recently at meetings in England between the engineering staff of the KVP Co. and officials of Black-Clawson from New York, Montreal and London. Manufacture of the equipment will be shared by Black-Clawson facilities in Canada, United Kingdom and the United States.

Joint Research Program Planned

Nearly 20 United States and Canadian companies have subscribed to a joint venture to underwrite the cost of a technical and economic evaluation by Arthur D. Little, Inc., industrial research consultants of Cambridge, Mass., of sulphite pulping processes and the many waste liquor treatment and recovery systems offerred.

Under the direction of Frederick G. Perry, Jr., a team of ADL researchers and consultants, including Allen Abrams, of Wausau, Wis., has already begun the research to provide the necessary framework for separate analyses to fit specific mill situations.

The team has laid out a five-stage program. Initially they will determine the relative technical and economic merits of each of the sulphite pulping processes and spent liquor-treatment systems for various probable mill situations. The second stage will be to relate the applicability of the liquor treatment systems with each of the sulphite pulping processes. Combinations with significant technical and economic advantages as well as those with inherent disadvantages will be highlighted. Thirdly they will compare the more promising sulphite pulping and spent liquor treatment combinations with the kraft process. Fourthly, the team proposes to develop information to help the companies solve specific mill situations such as pollution abatement, mill modifications, or mill additions. The final step will be to formulate research and development programs which should be of long term benefit to the sulphite industry.

Canadian Paper Production Shows May Gain

Canadian fine paper production in May was 23,864 tons, slightly ahead of the 23,829 tons produced in the same month last year. Output to the end of May was up 7.3 per cent at 117,238 tons as compared with the year ago total of 109,292 tons.

Shipments for the month were 23,061 tons including exports of 1,364 tons and domestic shipments of 21,697 tons. In May last year, shipments totalled 22,974 tons with 1,064 tons going abroad and 21,910 tons to Canadian consumers.

To the end of May, shipments were 114,694 tons as against 108,515 tons last year. Included in this year's total were exports of 6,714 tons, well ahead of the year ago figure of 6,170 tons. Domestic shipments for the five months were 107,980 tons as compared with 102,345 tons last year.

Coated paper output in May was 2,729 tons as compared with 2,641 tons a year ago. Shipments for the month were 2,663 tons this year and 2,718 tons in 1958. For the first five months, coated paper production totalled 14,016 tons and shipments 13,540 tons. In 1958 production was 12,416 tons and shipments were 12,445 tons.

New Sitka Mill to Open Earlier Than Expected

The Alaska Lumber & Pulp Co. has announced it expects to open its new pulp mill in Sitka a month or two earlier than originally scheduled which was in December.

Paper and Board Production

According to the American Paper and Pulp Ass'n., the ratio of the United States production to mill capacity for the week ending June 27, 1959, was 94.7 per cent compared with 96.3 per cent revised for the preceding week. The ratio was 88.0 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending June 27, 1959, was 98 per cent compared with 98 per cent for the preceding week and 89 per cent for the corresponding week a year ago.

(Detailed statistics on page 51.)

SCHOLARSHIP COMMITTEE of the N. C. State College Pulp and Paper Foundation. Members of the committee are shown with officials of the college. Seated l. to r. around table: H. D. Cook, assistant professor, pulp and paper technology; Dean R. J. Preston, School of Forestry; Dr. Lyle Rogers, director of department of counseling; Lee Darby, personnel manager, North Carolina Pulp Co., Plymouth, N. C.; Dr. H. Y. Charbonnier, manager—pulp and paper division, Union Bag-Camp Paper Corp., Savannah, Ga.; Professor C. E. Libby, head of pulp and paper course; V. K. Shannon, division manager, Mead Corp., Kingsport, Tenn.; C. E. Loughlin, chief chemist, International Paper Co., Georgetown, S. C.; R. E. L. Wheless, pulp mill superintendent, Union Bag-Camp Paper Corp., Franklin, Va.; and R. G. Hitchings, assistant professor of pulp and paper technology.

N.C. State Foundation Scholarship Awards

Award of $32,825 to 57 applicants enrolled in the pulp and paper technology program at North Carolina State College for the 1959-60 academic year by the school's foundation has been announced.

The Scholarship Committee of the foundation includes H. Y. Charbonnier, Union Bag-Camp Paper Corp., Savannah, Ga.; Lee Darby, personnel director of North Carolina Pulp Co.; C. E. Loughlin, chief chemist of International Paper Co., Georgetown, S. C.; V. K. Shannon, manager of the Mead Corp. mill at Kingsport, Tenn.; and R. E. L. Wheless, pulp mill superintendent, Union Bag-Camp Paper Corp., Franklin, Va.

"CALL OF THE OUTDOORS," weekly TV program, sponsored by The Glatfelter Pulp Wood Co. over Channel 8 WGAL-TV, Lancaster, Pa., has received a National Award of Merit for 1959 from the American Ass'n. for Conservation Information. M. J. Golden, executive director of the Pennsylvania Game Commission, is shown presenting citation to Harry Allaman, program host, during show June 20. Looking on are, l. to r.: Glenn M. Markle, public relations manager, P. H. Glatfelter Co.; Harold Geiger, forester, Glatfelter Pulp Wood Co.; Harold E. Miller, WGAL-TV station manager.

Bare Paper Co. Rebuilding Its No. 3 Paper Machine

D. M. Bare Paper Co., Roaring Spring, Pa., is doing a complete rebuild job on its number three paper machine. Plans are under way for the possible replacement of number 2 paper machine with a new one. These plans have not yet been approved by the board of directors.

Pulp Chemicals Ass'n. Opens New Office

The Pulp Chemicals Ass'n. is opening new offices at 60 East 42nd Street, New York (Lincoln Building). Offices of the association were formerly located at 122 East 42nd Street.

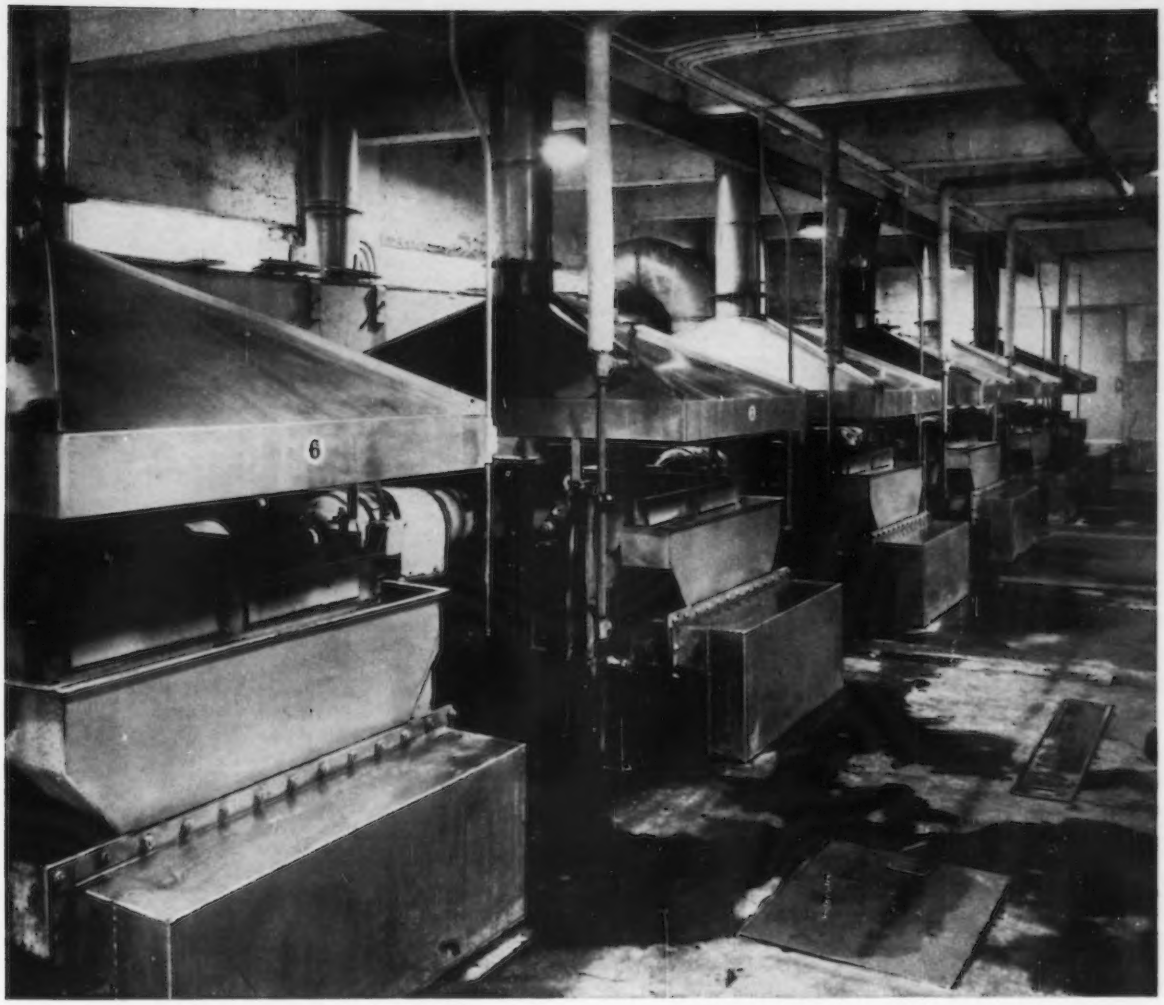
Pulp Chemicals Ass'n. was formed in 1955 succeeding the former Tall Oil Ass'n. which had been organized in 1947 and now includes the Tall Oil Products Division and the Sulphate Turpentine Division. The association is organized to represent manufacturers of chemical products produced by, or from, products of the wood pulp industry. Its program is designed to sponsor and encourage research in production and marketing, to collect, compile and disseminate industry statistics, and to direct public relation efforts for the industry.

The association has published 18 bulletins in the series "Tall Oil in Industry" and one in the series "Sulphate Turpentine in Industry." These bulletins which have been distributed widely cover the technology and uses of the tall oil products and turpentine from kraft pulping.

Court of Appeals Rules In Favor of Scapa Dryers

In the litigation between Scapa Dryers, Inc., and Abney Mills the United States Court of Appeals for the Fifth Circuit has unanimously reversed the judgment rendered last February in favor of Abney Mills and directed the entry of a judgment in favor of Scapa Dryers, Inc. The judgment which the Court of Appeals reversed had enjoined the Hindle-Scapa interests from using or operating Hindle looms in the manufacture of dryer felts in this country. The effect of the reversal is to confirm the right of Scapa Dryers, Inc., to continue to operate and to enlarge the capacity of its plant located in Waycross, Ga., which has been supplying Scapa dryer felts woven on Hindle looms to the U. S. paper industry since 1956.

Church's professional life has been devoted to forestry and the pulp,



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BIRD JONSSON SCREENS

Knots, chips, shives and dirt are whisked out of the stock by these efficient, vibrating, perforate plate screens with minimum loss of good fibre and with only .06 HP per ton.

The neat installation above shows six of the fourteen Bird-Jonsson Screens at Crown Zellerbach Corporation's Port Angeles mill.

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PAPER PEOPLE

C. A. Montague

E. A. Stafford

Buckeye Ups Two at Memphis Unit

The Buckeye Cellulose Corp. announces the appointments of Charles A. Montague, Jr., as cotton linter pulp sales manager and E. A. Stafford as plant manager of its Memphis pulp manufacturing unit.

Mr. Montague replaces R. R. Milner who resigned to devote full time to the management of The Farmers Tankage Co., a rendering firm he recently purchased at Covington, Tenn. Mr. Stafford succeeds Mr. Montague.

Mr. Montague joined Buckeye in Memphis following graduation from the University of Tennessee with a civil engineering degree in 1951. He has held several engineering positions with Buckeye, serving most recently as plant manager of the Cellulose & Specialties Division at Memphis and as resident engineer for the expansion program at Buckeye's Foley, Fla., pulp plant.

Mr. Stafford joined Buckeye in Memphis in December 1952, after receiving his B.S. degree in chemical engineering from the University of Mississippi and his M.S. in chemical engineering from Louisiana State University.

Mr. Stafford has been in charge of process development work in both wood and linter cellulose pulps in Buckeye's technical division.

Rayonier Announces Personnel Changes

D. K. Smith has been promoted to manager of Rayonier's Eastern Research division at Whippany, N. J., and John P. Hollihan to assistant manager, announced Dr. R. Logan Mitchell, general manager of research.

Dr. Smith, who has been assistant manager at Eastern Research, fills the post held by Dr. Mitchell since this research station, the chemical pulp producer's third and newest, was established in 1956. Dr. Hollihan had been with technical service, the company's agency for providing technical assistance to users of its pulps and silvichemicals both in the United States and overseas.

Prior to his association with Rayonier in 1954, Dr. Hollihan had been with American Viscose Corp., Marcus Hook, Pa., where he headed viscose research. He earned his Ph.D. at the University of Minnesota and his B.A. in chemistry at the University of Southern California.

Also announced is the appointment of S. Earll Church as manager of Rayonier's technical service. He replaces George B. Creamer who was earlier named assistant general manager of research.

Dr. Church, who joined Rayonier as a technical service representative two years ago, had been associate professor of pulp and paper technology at State University of New York at Syracuse.

A holder of an M.S. degree in forestry as well as his Ph.D., Dr. Church's professional life has been devoted to forestry and the pulp, paper and cellulose industries. He began his career as a millhand and millwright, and has also worked as a laboratory assistant, a research chemist and production development chemist.

Union Bag-Camp Paper Promotes Little, Edwards

Union Bag-Camp Paper Corp. has announced the appointment of Frank C. Little as director of standard products sales. A member of the Union-Camp Organization since 1949, he served most recently as assistant director of the department.

In his new position he succeeds Robert J. Harley who, for reasons of health, has asked to be assigned to a position with less demanding duties. Mr. Harley will continue to be active in the standard products sales department as manager, agent sales.

At the same time, the company announced the appointment of Howard J. Edwards as northeastern district manager for standard products sales. This position was formerly held by the late Theodore Duffy. Mr. Edwards previously served as the company's western representative for processed paper and board sales.

Scott Makes Engineering Changes at Everett Mill

Sidney Silverstone has been appointed chief process engineer in the pulp technical control department at Scott Paper Co.'s Everett mill. Mr. Silverstone joined the company in 1941 as a tester and became project chemist in 1945. He will be responsible for all testing and statistical work in connection with the process control department.

James Brawn has been named chief engineer in the technical controls department at Everett. Mr. Brawn assumed the position of project engineer at Everett in 1955.

Two new shift supervisors have been announced for the Everett pulp mill. These are Elmer Christoferson and James Farrington. Mr. Christoferson went to Everett in 1937 and has been employed in the pulp mill ever since. His recent position has been assistant pulp mill technical control manager. Mr. Farrington joined Scott in 1953 as a chemical engineer and later moved to the technical control department as project engineer.

David Sherwood and Victor Wil-

DOW | COATINGS

DOW LATEX "BEEFS-UP" BOXBOARD COATINGS!

Newsboard maker gets better binder at no extra cost

A switch from casein to Dow Latex as a coating binder for boxboard has resulted in better quality board and easier processing for a large midwestern manufacturer of clay-coated board.

Here's how: By substituting Dow Latex for casein in the binder formulation, they were able to obtain a pigmented clay coating with a lower viscosity, but containing a higher percentage of solid materials.

Result: Now, the new high-solids formulation with Dow Latex gives them a higher quality board with a heavier coating and better coverage—and as a result—better overall printability! The higher percentage of latex present in the coating means easier finishing on the calender — and a smoother, glossier board.

Many leading paper and board manufacturers are discovering the advantages of Dow Latex. Chances are a change to Dow Latex in the coating will make your boxboard behave better—in your production processes, and in your customer's end use. Why not contact the nearest Dow sales office, or THE DOW CHEMICAL COMPANY, Dept. 2321DP7-13, Midland, Michigan, for complete technical information.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

liams have been appointed project engineers in the pulp mill. Mr. Sherwood is a recent graduate of Northwestern University and Mr. Williams attended the University of Washington.

Haller Promotion Announced by CZ

Allen K. Haller, Crown Zellerbach, Lebanon, Ore., technical supervisor, has been promoted to Orzan production superintendent.

In his new duties, Mr. Haller will be responsible for production and shipment of the Orzan line of spent sulphite liquor chemical bi-products, as well as production trials of new developments.

Mr. Haller came to Lebanon in March 1957 from CZ West Linn, and has been technical supervisor for the past 20 months.

His successor as technical supervisor will be Bernard E. Bergmann, coming to Lebanon from Port Townsend, Wash., where he was assistant technical supervisor in the Crown mill there.

Crossett Reorganizes Sales And Production Depts.

A number of key personnel changes brought about by a reorganization of responsibilities in sales and production departments at Crossett Paper Mills have been announced by J. C. Hair, manager of the Paper Division of The Crossett Co.

A. B. Moore, Jr., has been promoted to the new position of division production manager. For the past three years he has been production manager of the bleached food board mill. Prior to that time he was assistant to the vice president and general manager of The Crossett Co. Mr. Moore joined Crossett Paper Mills in 1937, soon after he graduated from college.

Two new positions of mill managers have been created by the reorganization. They are being filled by C. L. Brown and Robert E. Collins. Mr. Brown, a native of Crossett, will head operation of the kraft pulp and paper mill and Mr. Collins will be responsible for the food board pulp and paper mill.

Mr. Brown joined Crossett Paper Mills in 1951. Prior to this recent promotion he was assistant production manager of the kraft mill.

Mr. Collins, a native of New York city, joined the Crossett organization in 1955. Since that time he has been superintendent of the bleached food board pulp mill.

Earl Jones, assistant pulp mill superintendent, has been promoted to fill the vacancy created by Mr. Collins' advancement. He has been with Crossett Paper Mills since 1937.

C. H. Dunn remains as superintendent of the food board paper mill under the new organizational set-up.

E. E. Stephenson

W.M.U. Honors Stephenson

Edward E. Stephenson, director of quality for the Sutherland Paper Co., Kalamazoo, Mich., was honored by the Faculty Senate of Western Michigan University as an outstanding alumnus, and was presented with a set of Colliers Encyclopedia during the 55th annual commencement rites June 13.

Mr. Stephenson graduated from Purdue University in 1949 and then came to Western to study paper technology, earning a bachelor of science degree in 1951. He then joined Sutherland.

Two Promoted at I-P Hudson River Mill

E. V. McKenna has been promoted from beater room foreman at International Paper Co.'s Hudson River mill at Palmer, N. Y., to sulphite superintendent at the same mill. Mr. McKenna succeeds F. J. McCourt who was recently promoted to manager of International's mill at York Haven.

Mr. McKenna joined the Hudson River mill in 1948 as assistant chemist and in 1952 was made assistant superintendent of cores and wrappers. He became beater room foreman in 1957.

R. W. Durand, technical supervisor at the Hudson River Mill, has been named beater room foreman to replace E. V. McKenna. Mr. Durand joined the Hudson River mill in 1956 and was appointed technical supervisor in 1958.

Morrill, Tucker To Retire From Top Chemical Posts

Ralph H. Morrill and Elmer C. Tucker have announced their retirements from active duty with the Chemical Fine Paper and Board Division of the Standard Packaging Corp. in Holyoke, Mass.

Between them they have had 90 years of service with the Chemical and Crocker-McElwain paper manufacturing mills. Mr. Morrill, who is president of Chemical Paper Manufacturing Co., has been with the organization for 46 years. He joined the Crocker-McElwain Co. in 1912 and in 1920 was transferred to its associate mill, the Chemical Paper Co. as assistant treasurer and manager. He moved up through the organization and in 1939 became vice president and general manager. He then became president.

Mr. Tucker joined the company in 1915 following his graduation from Dartmouth College to be a chemist at the Crocker-McElwain Co. mill. He was later promoted to production manager and in 1922 moved over to the Chemical mill as production manager. In 1928, he was made vice president of both the Chemical and the Crocker-McElwain concerns.

Gulf State Elects Miles V-P-Forestry

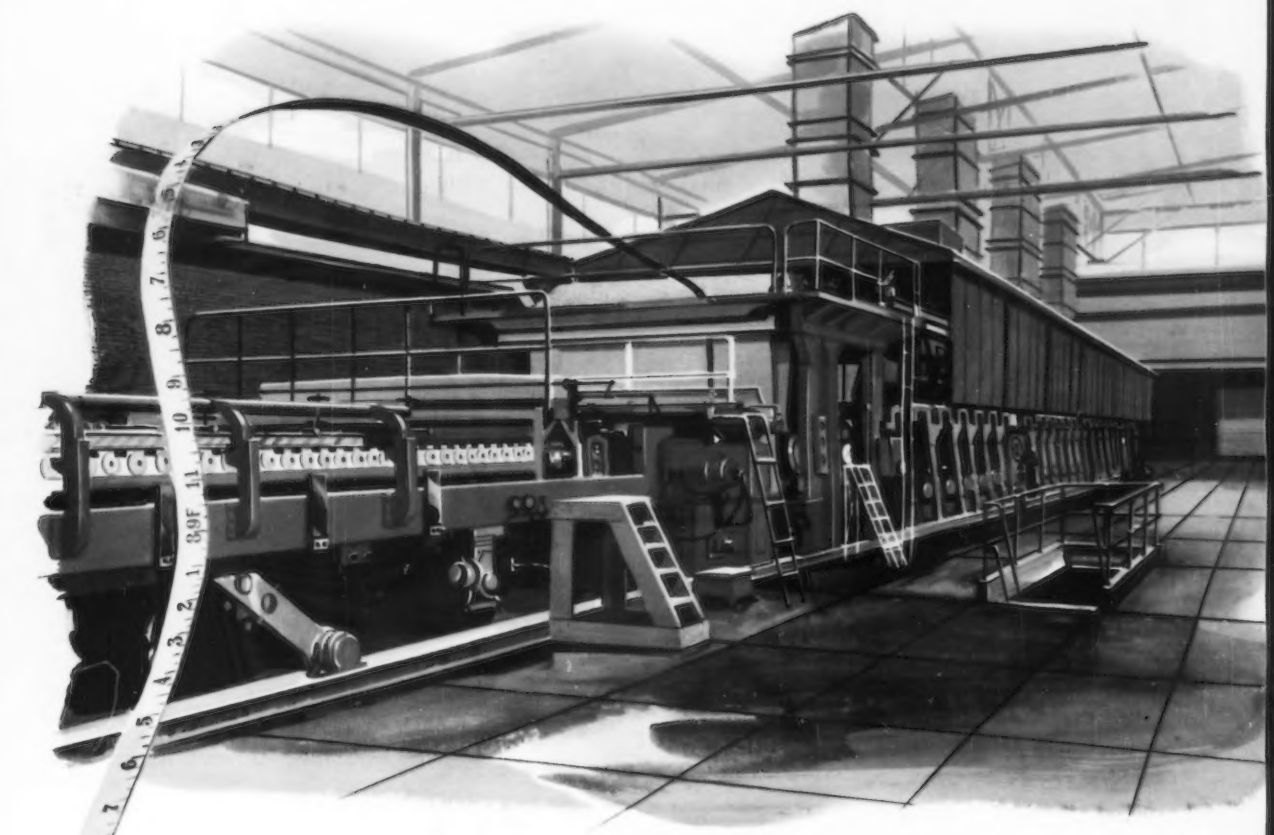
R. Vance Miles, Jr., has been elected vice president-forestry by Gulf States Paper. Mr. Miles joined Gulf States Paper in 1942 after ten years with the U. S. Forest Service. When the company's forestry division was organized in 1949, he was named its manager.

The new vice president served as president of the Southern Pulpwood Conservation Ass'n. during 1954. He has been chairman of the Southeastern Section, Society of American Foresters, and chairman of the Alabama Forestry Council. Mr. Miles was the first head of the "Keep Alabama Green" program.

C-Z Announces Executive Appointments

R. H. R. Young, Crown Zellerbach Canada, has been appointed assistant vice president on special assignments at C-Z in San Francisco. Mr. Young has been employed by C-Z in many capacities, starting as carpenter's helper at its Canadian mill in 1922.

F. O. Boylon, resident manager of the Camas, Wash., mill has been



Made to measure?

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Consider the custom tailor. He studies his subject thoroughly, designs his tailoring to meet individual requirements and takes progressive measurements to assure a fine fitting garment.

Huyck does even more. Huyck studies all felts every step of the way from the sheep's back to the finished paper product including a careful evaluation of the machine performance of each Huyck felt.

This close scrutiny, literally from the cradle to the grave, spells the difference between ordinary performance and that of *new* Huyck felts.

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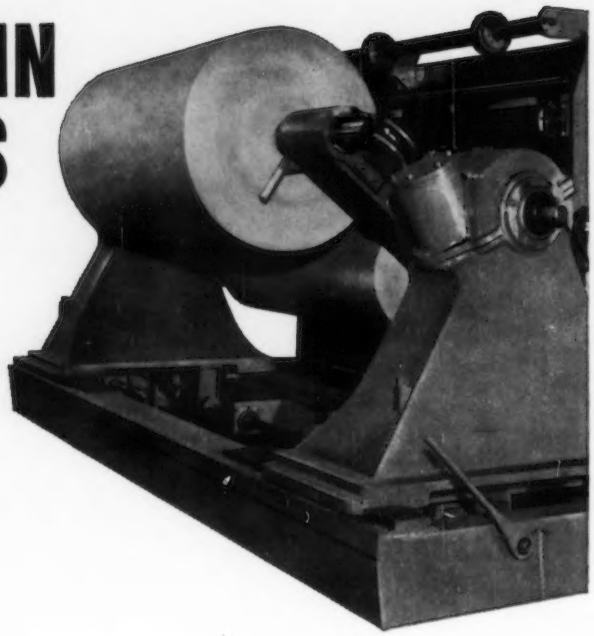
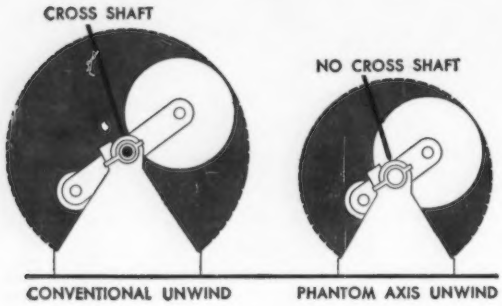
NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

ANNOUNCING... A NEW ADVANCE IN TURRET UNWINDS

EGAN PHANTOM AXIS* TURRET UNWINDS





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made assistant vice president for manufacturing at C-Z headquarters in San Francisco. Mr. Boylon has been resident manager at Camas since 1956. Prior to that he was assistant resident manager at Camas and at the Ocean Falls mill.

R. A. Butler, assistant resident manager at the Camas mill is now resident manager, succeeding Mr. Boylon. Mr. Butler joined C-Z in 1939 and has held the positions of technical superintendent at the Ocean Falls Mill and manager of pulp production at Camas.

Westvaco Names McCain To New Post

West Virginia Pulp and Paper Co. has named William S. McCain, a member of the personnel staff of the Luke, Md., mill as assistant coordinator of labor relations.

Mr. McCain will assist D. C. Valentine, the company's coordinator of labor relations located in Covington, Va., in providing labor relations staff services on a company-wide basis, and in negotiations at the Williamsburg, Pa., Luke, Md., and Covington, Va., mills, which are covered by three-mill contracts. In his new position Mr. McCain will continue to make his headquarters at Luke.

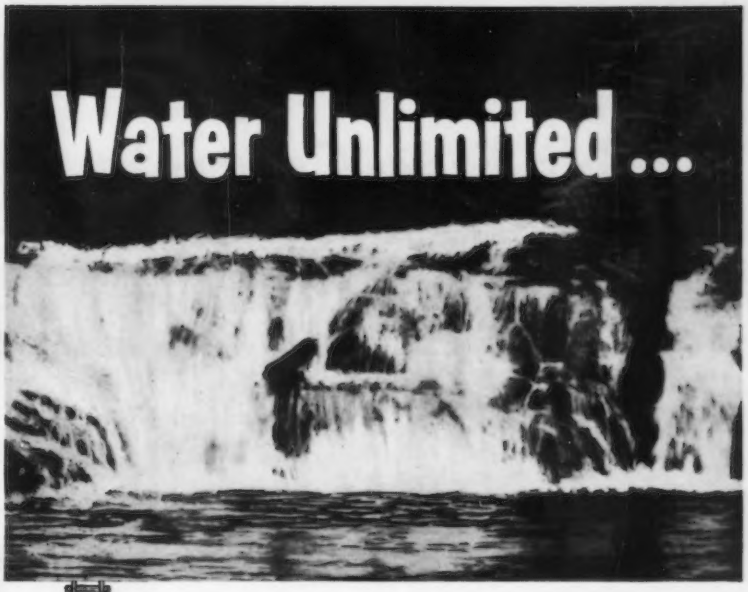
Formerly with International Paper Co. with experience in both production supervision and industrial relations, Mr. McCain came with the company in 1957 as labor relations assistant to the personnel manager at the Luke mill.

McFarland Joins O-I In Traffic Post

Appointment of Urban E. McFarland, to the newly created post of general traffic counsel of Owens-Illinois Glass Co. has been announced. In his new post, Mr. McFarland will be responsible for counseling company management on major traffic and transportation affairs essential to the development of Owens-Illinois' long range growth program.

Mr. McFarland is a member of the executive committee of the National Freight Traffic Ass'n., a founder member of the American Society of Traffic and Transportation, a member of the National Industrial Traffic League and of the traffic committee of Glass Container Manufacturers Institute.

Also effective July 1st., Richard E. Knudson was appointed general traffic manager for O-I. Mr. Knudson has been assistant general traffic manager since 1955.



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Your market is here, too. A vast market of business, industrial, and individual consumers. And it's growing all the time.

Industrial development specialists at Atlantic Coast Line already know the general requirements for profitable paper plant site location. Give them a try on your specific needs. Literally hundreds of thousands of acres of choice spots are now available.

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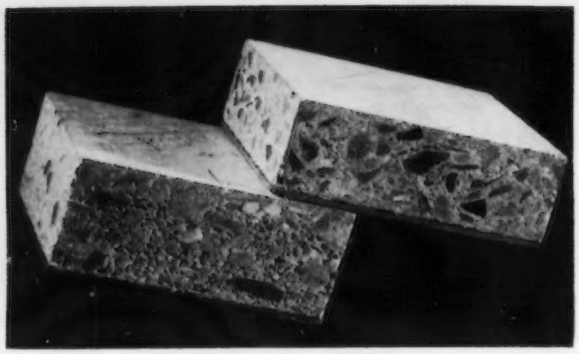
ATLANTIC COAST LINE RAILROAD

Trouble-Free Concrete Floors: How to Get Them and Keep Them



William C. Perry,
District Representative,
Kalman Floor Co.,
New York, N. Y.

A recent nationwide survey by a leading architectural magazine revealed a very significant fact: 61 per cent of the respondents have difficulty with their plant's concrete floors.

This situation could get worse. On a conservative basis, floors receive 75 per cent to 80 per cent of the frictional use of a building. This useage will increase in severity as production is speeded up and heavier and more rapid machinery is used.

In the paper industry this is especially true. Machine speeds certainly will increase. To "feed" these machines and to haul away the finished product, materials handling vehicles at both ends of the machines must move more material—and move it faster. Converters face the same increased pace.

How Floors Enter Picture

Floors can slow down materials handling vehicles in areas which are chipped or cracked. When much maintenance is required, floors can gobble up a lot of money. Also, dust can make paper dirty, both during and after production. And dust can come from poor floors. Floors can, in short, slow down materials movement, make quality production difficult, and significantly increase plant maintenance expenses.

But this need not happen. Remember 39 per cent of the nation's floors apparently are trouble-free.

The Mead Corp., Chillicothe, Ohio, is a good example of "floor conscious" companies. As is evident in some of the accompanying photographs, Mead has some of the paper industry's finest floors, yet requires them to absorb a good deal of hard use. Especially important is the requirement that despite severe frictional useage from materials handling equipment, they cannot disintegrate and cause dust in the finishing and sorting rooms since this would ruin the paper.

Dust-free floors are a basic requirement in plants producing containers for foods and beverages. For instance, at the American Can Co.'s plant in Needham, Mass., the most exacting sanitary conditions are observed in manufacturing the company's paper containers for milk. During the fabrication steps, container components are stored in dust-proof bins. Completed containers enter a filtered air chamber where they are sterilized in a molten paraffin bath, cooled and the cap mechanically closed to insure cleanliness during shipment to the dairy. To maintain these sanitary standards, the company requires floors that will stand up under heavy use and are non-dusting and easy to clean.

The Huyck Felt Co. is another interesting example. The floor in a plant producing papermakers' felts must be absolutely smooth and nonstaining because during manufacturing the felt is laid upon the floor. Any rough surfaces would snag and injure the fibers. This would make an expensive, custom-made felt a reject, or a costly repair problem, since as George L. Brown, Huyck's vice president of purchasing, puts it: "There are no seconds in our business. We can sell only first quality felts." And because the felts are laid out on the floor, the surface must be stain free since any discoloration might be transferred to the felt.

Thus, when the Daniel Construction Co. built Huyck's new plant in 1956 at Aliceville, Ala., the entire manufacturing area of 200,000 sq. ft. was topped with granolithic concrete because it was bound to be dust free and easy to clean.

Thus, there is ample proof that quality surfaces can substantially reduce—or completely eliminate—floor problems. Also, they can help produce a perfect product.

On the other hand, we have encountered companies budgeting upwards of $60,000 yearly just for floor repairs such as patching. Multiplied by any reasonable period of floor life, say 25 years, and figures like this assume frightening proportions. They could well make the difference between a profitable plant operation and an unprofitable one. Add in the other difficulties which poor floors can cause and the subject becomes one which begs for attention.

Requirements of Flooring

All three examples cited are floors made of absorption-process concrete.

But this shouldn't be construed to mean that this type of surface is best for all requirements. No floor surface material meets all requirements. Tile, asphalt, wood, brick, etc., all have their uses as floor materials. The right one can be selected only after adequate consideration has been given to the type of service it is expected to give—the type of manufacturing, the presence of acid, the movement of vehicles, storage conditions, etc.—all are determining factors in the selection of a surface. Just following this one rule will eliminate a lot of floor grief.

It should be noted in this connection that surfaces can be "mixed." Some companies have one kind of surface in heavily-trafficked places like aisles which run through lightly-used manufacturing areas. The manufacturing areas themselves have a different type of surface. Likewise, areas subjected to chemical spillage have a third type of surface. Numerous variations exist. On the other hand, some specifications call for only one type of surface since that provides the greatest amount of floor plan flexibility.

Types of Concrete

Despite the many floor surface materials, concrete floors are specified for more than 90 per cent of the areas in industrial plants and warehouses. Thus, it is important to understand the differences in the two types of concrete surfaces—regular topping and absorption process granolithic topping. The difference between the two types is evident to the naked eye.

The photo on the title page shows why floors fail. Note the difference, in the two specimens pictured. The one at right is solid, while the one at left contains many air pockets. These air pockets reduce the strength of the concrete and are one of the reasons why concrete floors improperly laid fail under rugged plant operating conditions. The piece of concrete at right, in effect, is a single unit; the paste (or cement) and the aggregate have formed a permanent bond that resists the fracturing effects of heavy dynamic and static weights.

Granolithic is a separate topping surfacing. It is a topping placed upon the structural slab. It possesses great density. Thus, it has great load bearing and friction-resistant capabilities. Also, it is impervious to most liquids. A measure of the value of absorption process granolithic topping is its high crushing strength of 8 to 10,000 p.s.i.

Monolithic concrete slabs, on the other hand, make good structural concrete, but special surfacings are necessary, with expert workmanship, for floors required to withstand heavy service.

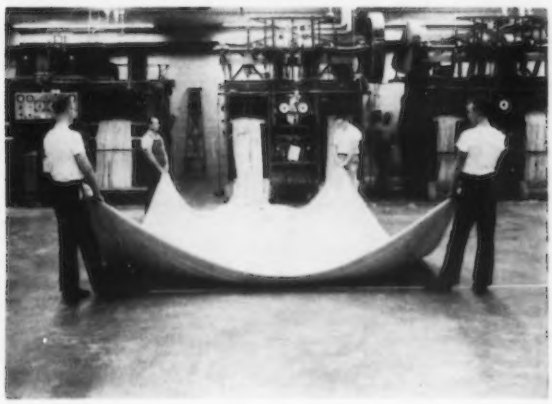
What About the Contractor?

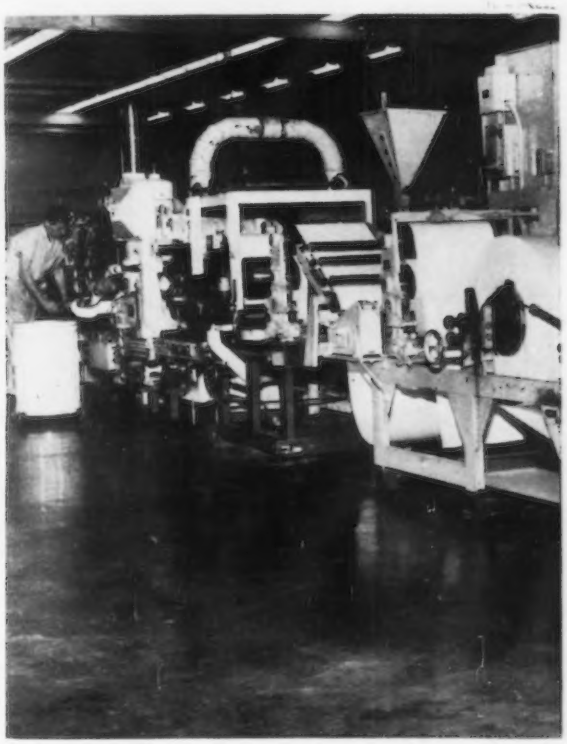
Regardless of the type of floor surface you choose, you will do well to check thoroughly the experience and qualifications of your, floor contractor because of the nature of our business. Let me explain. In the matter of production, the average manufacturer has from one to six inspection points. The paper industry is one of the most conscientious in this regard. Before the product is shipped everything is thorougly inspected by trained personnel — sometimes each and every sheet of paper.

But in the building business, generally speaking, the contractor sets up shop in a virtual "prairie" and everything is done from scratch. He brings all his tools and hires virtually all labor from nearby towns. Generally, raw material is obtained from unknown sources. Thus, it is important to know a lot more about your floor surface contractor than his price quotation. For example, in our case the most searching questions are usually about four items: our absorption process, our selection and testing of materials, our trained organization, our integrity. Any contractor worthy of your business will answer these questions fully.

Why is it important to be so thorough in selecting a floor surface contractor? The reason is that it is the contractor who can "make or

Here, at the Huyck mill in Aliceville, Ala., the floor is used as a "table" upon which felt is spread out. Its surface is smooth, non-staining, and non-dusting.





This American Can Co. machine fabricates paper stock which eventually becomes the body of a milk container. Cleanliness is essential. Employees must observe strict sanitary conditions. The "body blank" stock is immediately placed in "dust-proof" trucks kept tightly covered until blanks are used at the next operation. Floor is broom-cleaned continuously and once a week scrubbed with solvents.

Here (l. to r.) are a number of the principal operations involved after materials are selected and properly mixed: hand trowelling, power trowelling, power floating, scraping floor, screeding, checking screeding, checking curing, grouting. In center of photo a number of the steps in the absorption process are shown.

All concretes are not the same. The entire area shown is covered with granolithic concrete, but by two different contractors. Portion underneath fork lift truck was laid by what is called the absorption process method, initially more expensive, but with greater staying power.

break" your concrete floor surface. For example:

In the matter of trained men: Only trained men can properly select the raw materials, instruct the local laborers, and certainly only a trained crew of supervisors can perform the inspection function.

In the matter of integrity: To obtain uniform texture in a concrete floor surface, it is necessary to do the final process by hand trowelling. This is just one instance of where a contractor may cut corners because the results of a poorly laid floor often are not evident for several years.

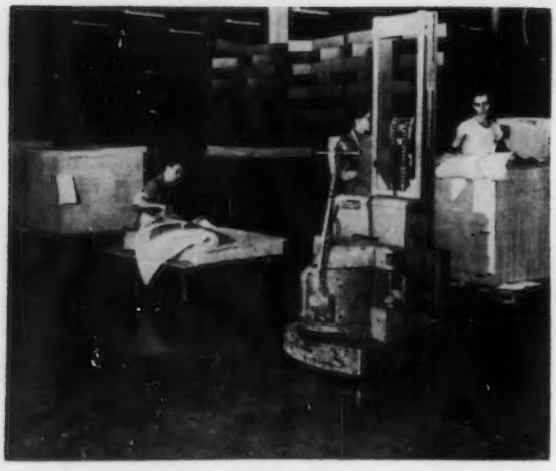
How to Keep Floors

Proper maintenance procedures are essential to keeping a good floor. In general, two steps are sufficient:

1. Continuous inspection — Repair surface imperfections immediately. No matter how small the imperfection, it is easier and cheaper to fix it immediately. If left alone, little imperfections such as cracks or small holes may grow and become difficult and expensive to repair.

2. Regular sweeping and washing —Such things as oils and gasolines cause concrete and most other surfaces to decompose chemically if they are permitted to remain on floors for any length of time. Likewise, pieces of abrasive materials can be ground into the floors by passing vehicles and might chip the concrete.

In summary, there need be no difficulty with floor surfaces if these points are remembered: (1.) Select the right surface; (2) select the right contractor; (3) protect your floor by proper maintenance procedures.

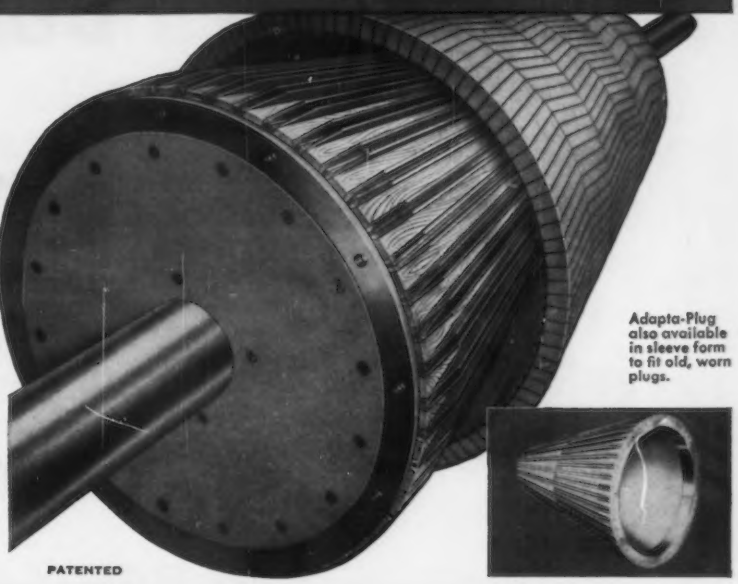


Clean floors, clean products. A clean floor is necessary to the production of a product such as quality paper. Improperly laid concrete floors disintegrate imperceptably causing a dusting problem. Note the shine on this concrete floor. It shows floor is hard and non-dusting.

How to ruin concrete floors. Several months ago this floor was new. The scarring, pitting and surface eresion took place because spilled liquids were not cleaned up.

PROVEN Jones Adapta-Plug

Many mills report spectacular savings for stripping and filling this completely bandless plug. Inverted-wedge-type slots hold bars more securely, eliminate slot wear and corrosion. Exclusive Nowave design assures precise alignment, closer contact, straighter bar wear, longer filling life, accurate plug settings, and better, more uniform refining. For full details on Jones Adapta-Plug send for Bulletin EDJ-1094 and 1094A.



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Adapta-Plug also available in sleeve form to fit old, worn plugs.

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Unlike sectional fillings, rigid Fulbar readily compensates for inequalities in old shell body.

Jones Fulbar fillings are available in *any* bar combination for *any* make of Jordan. Their rigidity and accuracy eliminate the need for keys and wedges. They are far easier to install, easier to grind in —and the patented Nowave pattern offers no sharp bar ends to form strings or lumps. For full details, send for Bulletin EDJ-1094.

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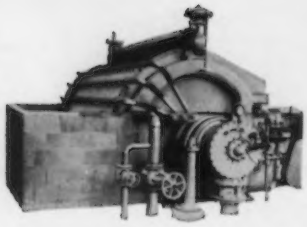
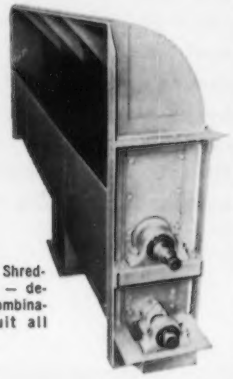


Oliver Vacuum Bleach Washer — now available in advanced designs and materials.

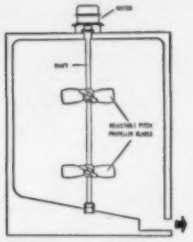
Dorr-Oliver Escoe and Nycoe Nozzles — minimize channeling and foam in the sheet.



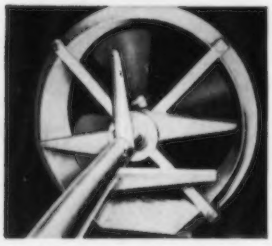
Dorr-Oliver Shredder-Conveyor — designs and combinations to suit all installations.

AGITATORS

Dorr-Oliver manufactures a variety of agitators specifically engineered to meet the specialized requirements of every operation in the bleaching system.

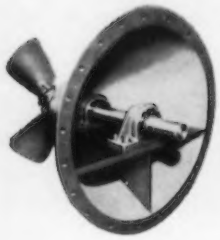


Dorr-Oliver Blending Chest Agitators — designed for proper agitation with minimum power requirements.

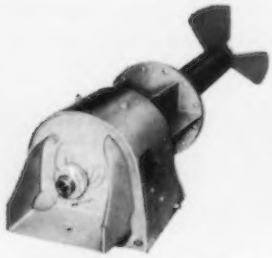


Dorr-Oliver Horizontal Chest Agitators — a complete line designed for tub or mid-feather type chests.

Dorr-Oliver Bleach Tower Agitators — tangentially mounted with either fixed or fully adjustable blades.



Dorr-Oliver Tower Agitators — for high density storage towers. Adjustable propellers.

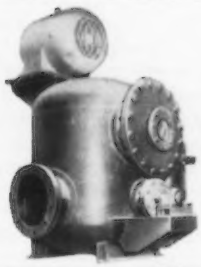


Falk All-Motor Driven Agitator — single unit motor, reducer and propeller assembly.

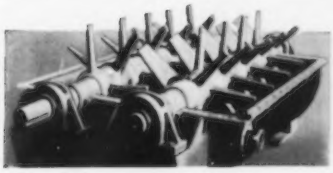
BLEACH PLANT EQUIPMENT

pulp mill engineers for pulp mill service

MIXERS

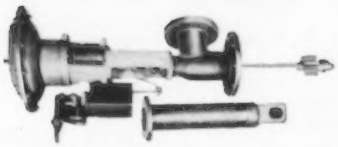


Dorr-Oliver Chlorine Mixer—rubber lined pressure chamber with internal counter-rotating propellers.

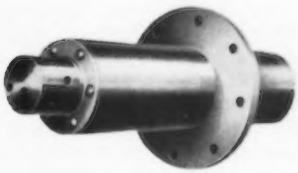


Dorr-Oliver Double Shaft Heater Mixer — rotating assemblies feature alternate propelling vanes and agitating pins. Reinforced stainless steel shell. Bearings outside shell for better protection.

NOZZLES



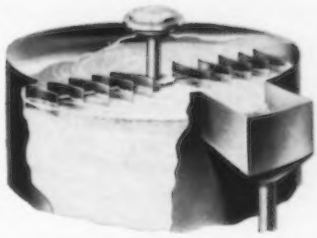
Dorr-Oliver Tower Dilution Nozzles — diaphragm actuated design features uniform, chatter-free throttling with freedom from plugging.



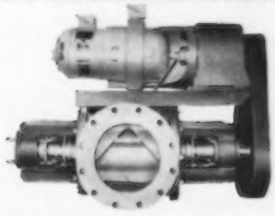
Dorr-Oliver High Density Storage Tower Nozzles — unique design with rotary oscillating action insures minimum wear and leakage.

MISCELLANEOUS BLEACH EQUIPMENT

Dorr-Oliver Top Scraper — rubber covered demountable rake arm provides continuous movement of stock towards launder. Adaptable for low density upflow bleach or chlorination towers.



Dorr-Oliver Rotary Vaned Feeder — for metering pulp or cooked chips in or out of pressure zone. Design minimizes shock loadings.



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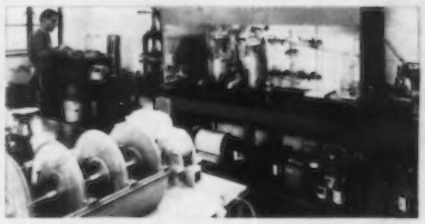

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Non-Destructive Measuring Of Drying Profile in Machine Direction

A. L. Petitjean,
Applications Engineer,
Western Dynamics Co.,
Seattle, Wash.

Measuring drying profile along the machine direction can offer the paper manufacturer some interesting information. A satisfactory method for measuring the moisture between the dryers without breaking the sheet has until recently been an impossibility. The measurements made were of an experimental nature on a fourdrinier machine producing 40-pound multi-wall bag kraft paper. The widespread interest that is being exhibited by paper makers in the manufacture of extensible paper emphasizes the importance of knowing the precise drying characteristics of the dryer section. This is particularly true when the paper sheet must enter the extensible unit with certain optimum moisture in order to obtain the desired end results of the product.[1] Knowing the existing profile of a particular machine that is to be modified for addition of an extensible unit would be another use for these data. Finally, a continuous automatic system will eventually be required to continuously indicate moisture at these high percentages and automatically control the main dryers.

Method of Measurement

The method used to measure the drying profile was indirect and was accomplished by using a portable Beta gauge. The unit extended far enough in on the sheet to eliminate the effect of edge drying and is therefore representative of the moisture content for the majority of the web. Since only one Beta gauge was available, the method of measurement made it necessary to use information obtained by the normal sampling method at the reel to determine the bone dry weight. It would have been desirable to have continuous basis weight readings as well as continuous moisture readings at the reel. This would have offered the optimum accuracy of measurement. However, by close cooperation of all hands, the method used gave sufficient accuracy for this experiment.

In order to elaborate on some of the problems involved, a very brief review of the operating principles of Beta gauges might be helpful. A Beta gauge is a non-contact method of measuring weight per unit area (refer to Figure 1). The measuring unit consists of a radioactive source of known energy level located on one side of the sheet. A receiving unit is located on the opposite side and continuously measures the radiation level at that point. The radiation energy lost as it transmits through the sheet is directly related to weight per unit area or, in more familiar terms, pounds per ream. The gauge is calibrated directly in units of pounds per ream to indicate the radiation energy lost in the sheet.

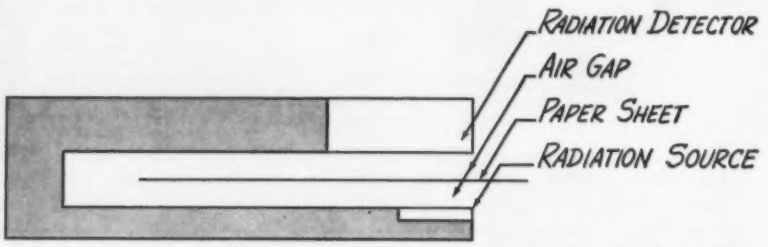


Figure 1: Cross-sectional schematic diagram shows how a beta gauge measures weight per unit of area of the sheet without contacting any part of the sheet.

Variables of Beta Gauge

The two main variables which affect the radiation energy that is received by the detector are; the energy loss due to the air gap, and the energy loss due to the weight of the sheet of paper. In a normal Beta gauge application, the air temperature is fairly constant or is air conditioned, or other methods are used to compensate automatically for variation of the weight of the air from that which the gauge is calibrated. The effect of air temperature and vapor pressure in the measuring gap in this experiment presented a major problem. The air was stabilized in the air gap by blowing a constant stream of air from an outside source between the radiation source and sheet and the ion chamber window and the sheet. This air also served the purpose of keeping the source window and ion chamber window clear of water condensation due to being placed in the hot, humid environment from a cooler, drier state. Calibration of the gauge was made in the near vicinity of the measuring point in order to minimize any differential temperature effects. The temperatures in the dryer sections were measured in the range of from 165° F. to 200° F.

With the stabilization of the air gap environment by the air conditioning system, then the only variable being measured was the wet sheet weight. Since water and fiber are made up of elements of comparable atomic weights, the difference in the radiation absorption coefficients of water versus fiber was negligible and well within the limits of the experimental accuracy. The gauge was inserted and readings were taken for about a four minute period. At the rate the machine was operated, this represented the average weight per unit area for about a mile of paper.

[1] The importance of moisture control in the manufacture of Clupak extensible paper is emphasized in Assoc. Editor Van Derveer's article on West Virginia Pulp and Paper Co.'s operation in Charleston, S. C., described in PAPER TRADE JOURNAL, June 29, 1959.

Extreme caution had to be used in order not to break the sheet since the space was extremely limited in which to insert the Beta gauge. The readings were recorded and the average basis weight determined; then calculations were made to determine the moisture percentage at the points of measurement. (Refer to Table 1 for sample calculation). These data are recorded in Figure 2 and represent the percentage moisture of the sheet along the dryer section.

Rate of Drying

The rate of drying could better be presented by expressing the ratio of water to fiber versus the dryer section. This method offers a better comparison of the drying rate because mathematically the ratio is a function of a nearly constant denominator, "fiber weight," whereas the per cent moisture includes the water plus fiber at the measuring point in the denominator of the equation. The water to fiber ratio is obtained by subtracting the fiber weight as determined at the reel from the basis weight as observed on the gauge at the point of measurement to determine the water. This is divided by the fiber weight as determined at the reel. The drying rate then, as presented in Figure 3, represents a more realistic presentation than when using the moisture per cent.

About 75 runs were made. A considerable number of these were made checking the equipment and adjusting the air conditioning air streams in the measuring gap to give accurate and repeatable results. The drying profiles as drawn up in Figures 2 and 3 were derived from measurements on about 36 miles of paper. Referring to Figure 3, it will be noted that the drying continues at an increasing rate until arriving at Dryer Number 36. At this point there appeared to be a discontinuity and the rate slowed down. Then, after proceeding through three more dryer cans, the rate again assumes a significant slope, although at a slower rate. The reason for this discontinuity might be that the sheet is heated to the boiling point and additional heat is required to vaporize the water due to the latent heat of evaporation of the water; or it could be that at this point practically complete evaporation of free water on the surface of the sheet has occurred and that increased heating is required to drive the bound water from the structure of the sheet proper. It is beyond the scope of this work to try to assess the reason for this discontinuity.

Theoretically, at least, this break in the drying curve could appear at a different dryer location with wide changes in atmospheric humidity conditions. More data on this would be required to determine the effect of atmospheric humidity under controlled conditions. Since the drying curve begins to flatten out as the sheet approaches the dry end, it would appear that a small change in moisture at the reel could be a significant shifting in the projected drying curve horizontally. Proper dryer drainage as well as many could affect the general position of the drying curve with respect to each dryer. The effect of different basis weight sheets was not thoroughly examined; however a similar sloped

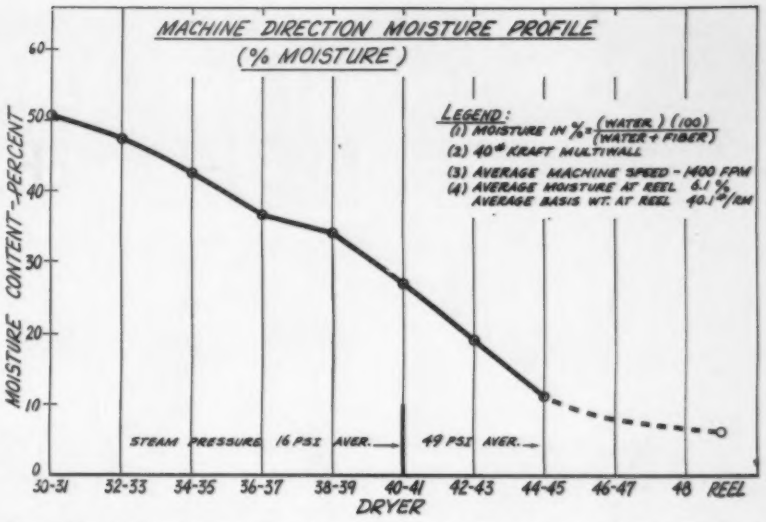


Figure 2: Graph indicates the moisture of the sheet at various positions in the dryer section.

TABLE I

SAMPLE CALCULATION TO DETERMINE PER CENT OF MOISTURE AT THE POINT OF MEASUREMENT.

Point of measurement	Dryer 34-35
Basis weight from gauge	67.6 lbs/ream
Dry end basis weight	40.0 lbs/ream at 6.1% moisture
Fiber weight	40 lbs—(40 x .061), or 37.6 lbs/ream
Moisture in sheet at dryer 34-55	67.6 — 37.6, or 30.0 lbs/ream
Per cent moisture in sheet at dryer 34-35	30 ÷ 67.6 or 44.5%

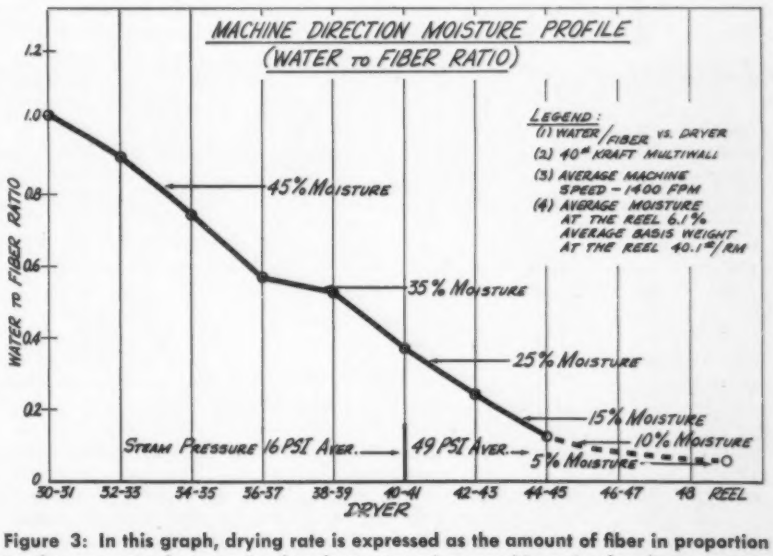


Figure 3: In this graph, drying rate is expressed as the amount of fiber in proportion to the amount of water in the sheet at various positions in the dryer section.

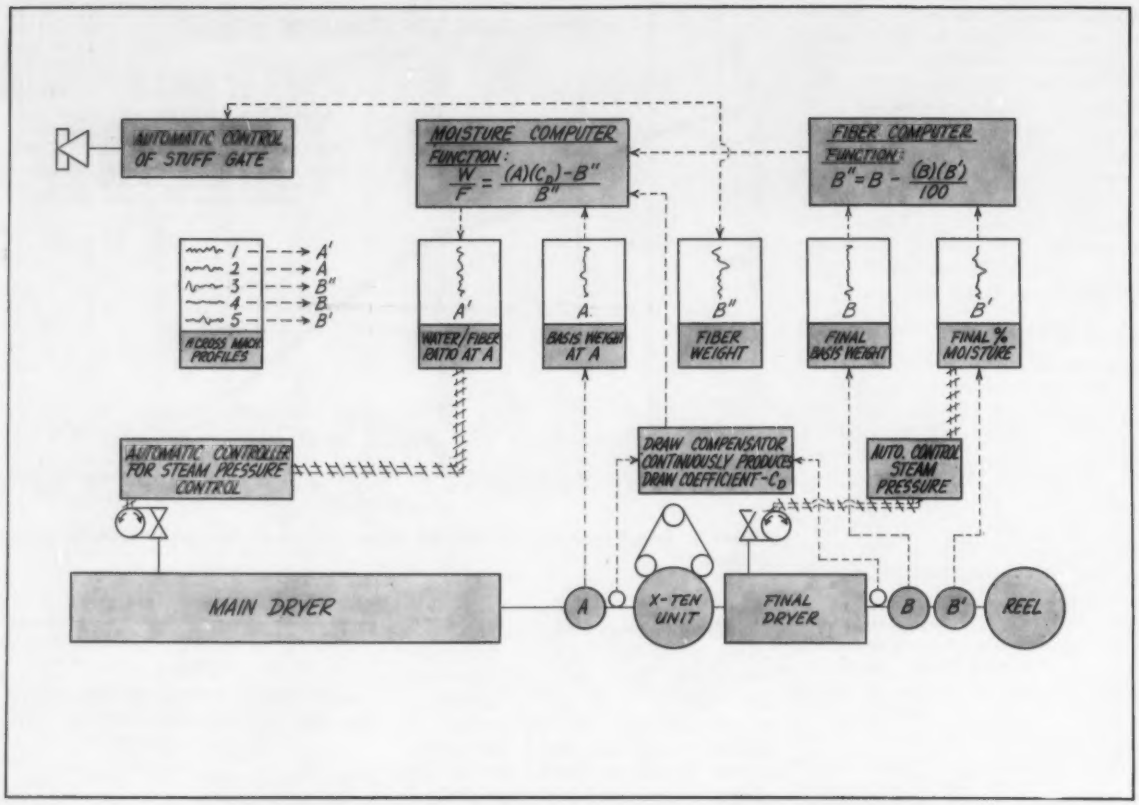


Figure 4: Schematic diagram illustrates how traversing beta gauges and moisture scanners used in conjunction with computers can continuously control the dryers before and after the extensible unit to result in the optimum end product.

curve was developed on one run of 50-lb. kraft multi-wall bag paper. The break in the curve did correlate with the natural shrinkage in the sheet. Certainly more experimental work would be required to analyze the effects on the drying curve due to some of the above-mentioned variables under controlled conditions.

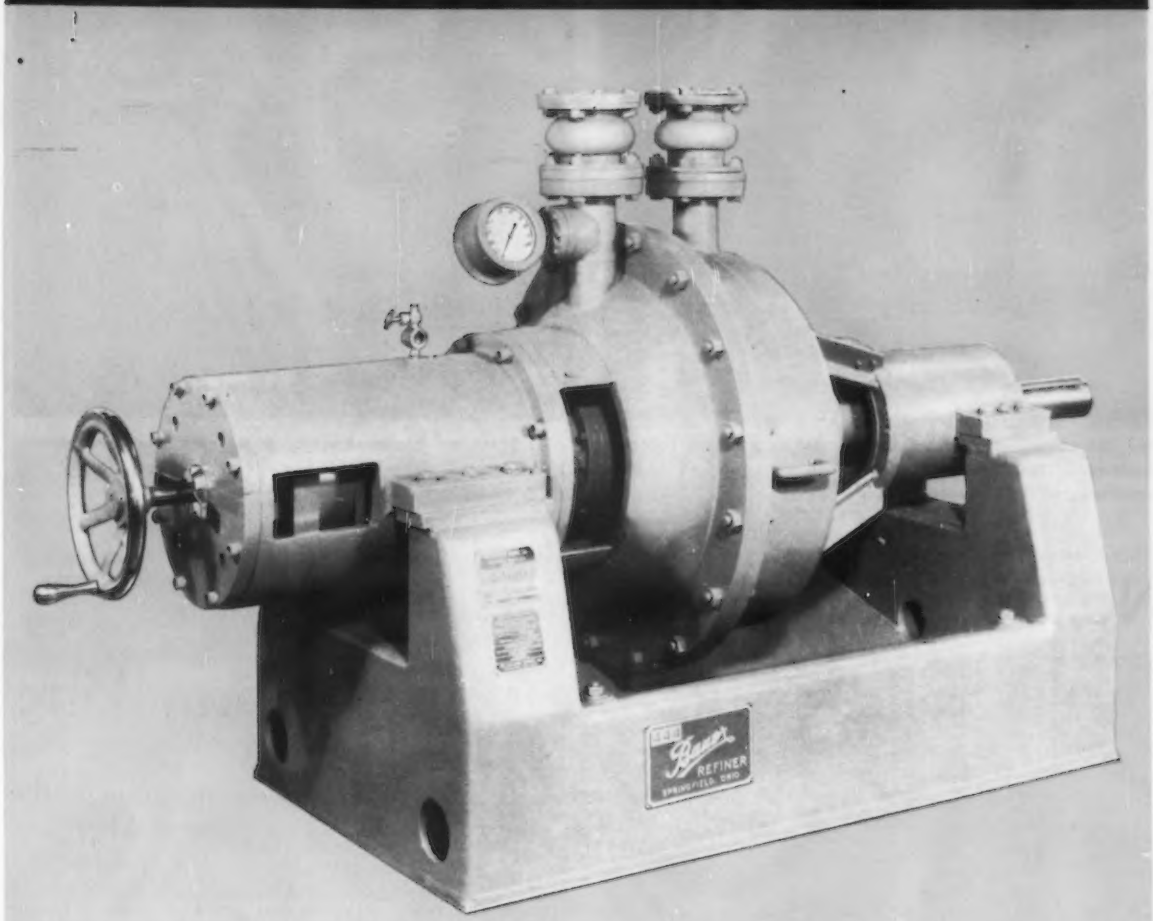
Aspects of Application

Practical applications of this experimental measurement of machine direction drying profile can be related to the current interest in extensible paper manufacture. For example, it has been established that in the manufacturing of extensible paper the sheet should enter the exten unit somewhere in the range of from 25 per cent to 45 per cent moisture. The water to fiber ratio that would correspond to 25 per cent to 45 per cent moisture would be .33 to .82. Referring to Figure 3 again, it can be seen that on this particular machine the break in the drying curve occurs right in the middle of this area. Predicting the moisture content of a sheet at the exten unit from some remote measuring point such as the reel would be extremely difficult to correlate. Therefore, measuring the moisture in the immediate vicinity of the extensible unit would appear to be a very desirable feature. With the continuous measurement of the moisture in a sheet at the extensible unit, the operator then can continuously control the main dryers to give the optimum moisture at the extensible unit. It seems justifiable to predict that there must be some optimum moisture ratio which would gives the best quality end product, similar to optimum draw of a sheet.

Figure 4 is a schematic diagram of a proposed system which would measure all the variables that were used in this experimental work, not only in the machine direction but also across the sheet. This proposed system consists of two traversing Beta gauges, one located at a point right ahead of the exten unit; the other located at the reel in combination with a scanning moisture gauge. From these units the following information is presented directly—the basis weight just ahead of the exten unit, the basis weight at the reel, and the moisture at the reel. A simple computer built in which will continuously compute from the combination basis weight and moisture gauges at the reel—fiber or bone dry weight. In the case of extensible paper the fiber weight at the reel will be greater than the fiber weight measured ahead of the exten unit. This is a function of the differential speed between the two measuring units and is automatically compensated for with an electronic draw speed. A moisture computer is provided which receives a basis weight signal ahead of the exten unit. This signal is either amplified or attenuated automatically depending on whether there is positive or negative draw between the measuring points. The moisture computer then compares this modified signal with the bone dry signal to indicate water to fiber ratio continuously. Since these units all operate simultaneously, five different profiles of across-machine variations can be presented.

As mentioned in the title of this article, this was a non-destructive method of measuring. Not a single foot of paper was lost in this experiment. In the 75 measurements that were taken in these extremely cramped quarters, the sheet was never broken.

A NEW 24" BAUER PUMP-THROUGH REFINER



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Carl Schiebler, general sales manager, presented talk on qualities of Nekoosa Bond and other watermarked grades manufactured by Nekoosa-Edwards.

Bill Gardiner, assistant general sales manager, presented animated talk on various Nekoosa paper grades and how they stack up with the competition.

Nekoosa-Edwards Gives Salesmen Solid Background in Papermaking

Aimed at successful selling, a two-week program at the mill emphasized the fundamentals of papermaking.

A unique training course for paper merchant salesmen, believed to be the only one of its kind in the paper industry, was conducted recently by Nekoosa-Edwards Paper Co. at its Port Edwards, Wis., plant. Designed specifically for new or beginning salesmen, the emphasis was on education rather than entertainment during the two-week session. Remarkable because of the length and scope of the schedule, the program covered all phases of pulp and papermaking.

The general approach used in the unique "Paper Fundamentals for Merchant Salesmen" program was this: First, a detailed lecture in the classroom by a company supervisor on a technical aspect of papermaking. Then, a tour of the mill department concerned, and finally, an open discussion back in the classroom where the student salesmen could get the answers to their questions.

This system served to break up the classroom atmosphere and afforded a change of pace through frequent excursions to mills, laboratories or forest nurseries. The pre-tour lecture also provided the salesmen with a general understanding so that they knew what to look for while in the actual production departments.

Fundamentals of Papermaking

The program began with a general orientation about Nekoosa-Edwards Paper Co. and its operating philosophy, delivered by Sam Casey, executive vice president and treasurer. Lectures and presentations that followed were in logical sequence relating to the pulp and paper-making processes and progressing to the actual end use of paper.

A lecture on sulphite pulping preceded a tour of the company's Port Edwards mill, followed by open discussion of the mill visit. Similar treatment was accorded the kraft process with tours of the Nekoosa mill. The days that followed featured lectures and tours on stock preparation, machine operation and finishing operations. A detailed tour of Nekoosa's forest nurseries was also included. Subsequent lectures the first week covered order processing, traffic and shipping procedures, pulp and paper testing, research and quality control.

End Use Emphasized

The second week of the program was devoted to Nekoosa paper products, merchanding, advertising and end use. Also included were lectures on packaging and product development. Much emphasis was placed on end use application of Nekoosa papers. A full day was spent at a local commercial printing firm, again featuring lectures, displays and demonstrations of printing production, planning and pressroom operations as well as the offset lithography process.

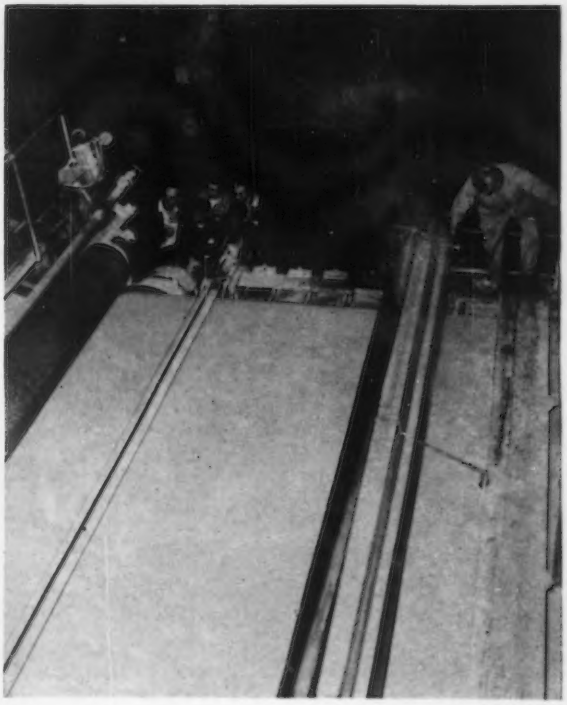
Climaxing the two-weeks program was a presentation by G. E. Veneman,

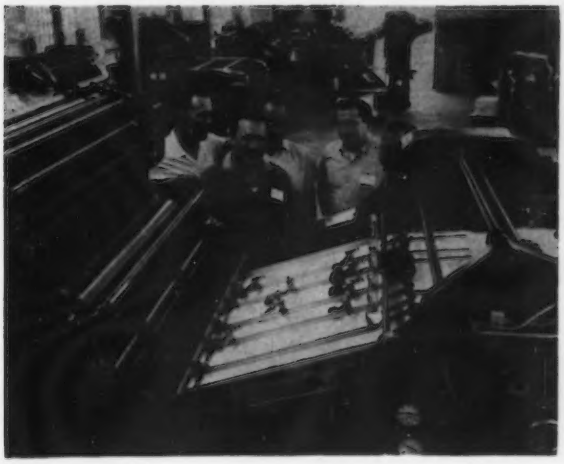
Robert Farnsworth, assistant sales manager, was coordinator of the salesmen's training program.

Modern tree-planting demonstrations gave student salesmen insight into current industrial forest practices.

Mill tours were thorough as technical and manufacturing department personnel explained details of wood handling, pulp and paper production. Shown here is the wood room of Nekoosa-Edwards' Port Edwards mill.

Guides explained intricacies of papermaking to salesman who spent a full day in Nekoosa-Edwards' two large Wisconsin mills. Here a group observes the fourdrinier section of the No. 9 machine.





Pressroom performance of Nekoosa papers was studied closely by student salesmen when they spent a full day at the Fey Publishing Co.

Lectures and displays of basic printing materials helped give salesmen background in copy preparation, type composition, plate-making and other details of printing production. Paul Brown of Fey Publishing is the speaker.

Paper characteristics are described by David Weart, sales service tester (center) to Don Patterson, The Cincinnati Cordage & Paper Co., Knoxville, Tenn. (left) and Lester Wren, Central Paper Co., West Jackson, Miss.

Wind-up of training program was talk by G. E. Veneman, vice president and director of sales, who reviewed principles of effective paper salesmanship.

vice president director of sales, covering principles and techniques of effective selling.

Solid Background for Salesmen

Follow-up reports from merchant sales managers back the contention held by Nekoosa's management that today's successful paper salesmen need all the solid background they can get in the gentle art of papermaking.

Nekoosa-Edwards' management and the paper merchant managers are convinced this intensive training will pay off. A similar program, with minor modifications is being planned to accommodate another group this fall.

Graduates of Nekoosa's training program. Front row, from left to right, Paul Hurt, Butler Paper; Richard McNamara, Gopher Paper; Jay Paul, Rhodes Paper; Robert Campanell, Brewer-Chilcote Paper; Kenneth Zund, Greenwich Paper; Victor Dulkiewicz, Butler Paper; James Roulo, J. W. Butler Paper; and John Hays, Midland Paper. Back row, from left, Earl Semrow, Universal Paper; Donald Patterson, Cincinnati Cordage & Paper; Michael Galvin, Butler Paper; Olen Burns, Beene Paper; Tom Giek, an observer of the course; Ronald Drake, Bond-Sanders; Robert Christopher, Paper Supply; Clarence Jacoby, The Cincinnati Cordage & Paper; John McHale, Whitaker Paper; Lester Wren, Central Paper; Harry Prest, Memphis Paper; Jack Forsyth, Yellowstone Paper; and Cletus Hansford, Superior Paper.

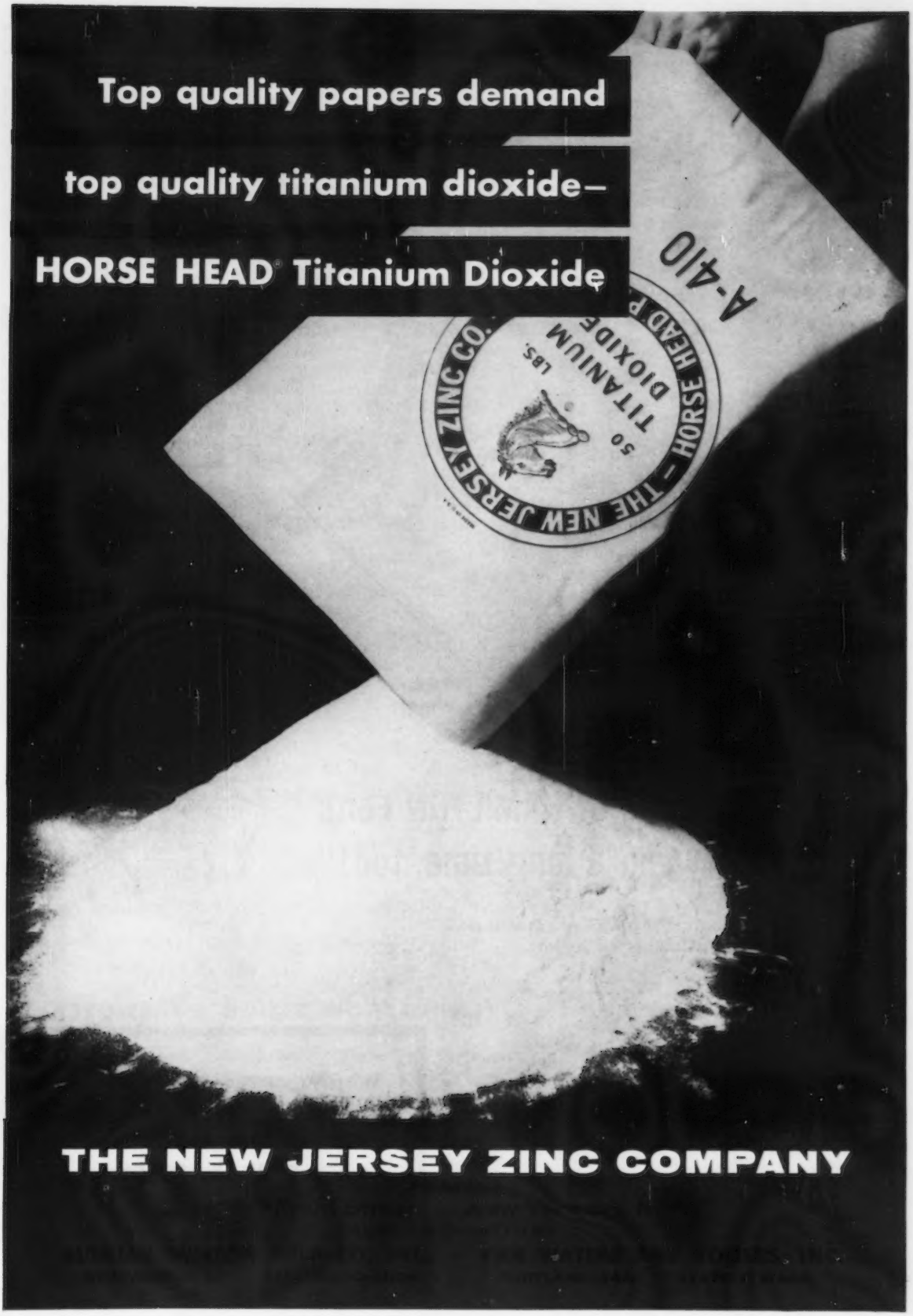

Top quality papers demand
top quality titanium dioxide–
HORSE HEAD Titanium Dioxide
A-410
THE NEW JERSEY ZINC CO.
50 LBS.
TITANIUM DIOXIDE
HORSE HEAD
THE NEW JERSEY ZINC COMPANY

Photo of Tower of Parliament and Big Ben Clock by Ewing Galloway

HAM FELTZ says:

"Reminds me of HAMILTON Felts . . . they run a long time, too!"

"Since 1858—the year before "Big Ben"—the famous clock was installed in London's House of Parliament —papermakers have found that Hamilton Felts give longest high quality performance between changeovers.

They help you reduce the high cost of downtime by keeping your machines running at top speed —longer . . . turning out tonnage with less broke and imperfections.

When it's time for a new felt on one of your machines, why not start using us as one source of your felt supply? Write, wire or telephone—today !

YOU CAN'T BEAT

Hamilton

FELTS

SHULER & BENNINGHOFEN, HAMILTON, OHIO

2 OF 7

Five similar digesters previously left Wyatt's Houston Plant for Installation in an Expanding Paper Mill in Louisiana.

The seven digesters were fabricated from 1½-inch and 1¼-inch plate ASTM A. 212 B.F.B. with special chemical analysis on copper, carbon and silicon.

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MANUFACTURERS AND ERECTORS SINCE 1913

large air-gap, is more efficient than

TABLE II

Application of Large AC Motors To Pulp and Paper Mill Drives

G. L. Oscarson,
Chief Application Engineer,
Electric Machinery Mfg. Co.,
Minneapolis, Minn.

In the pulp and paper industry which is so highly mechanized and where continuous operation is so important, the proper application of large motors is vital. Such application must encompass consideration of motor characteristics, load characteristics, and environmental conditions.

Except for a few applications, where variable speed is involved, virtually all pulp or paper mill loads can be handled by synchronous wound rotor, or squirrel cage motors. Further, any load which can be driven by a squirrel cage motor of Nema design B torque characteristics can likewise be driven by a synchronous motor. As will be pointed out later some variable speed loads can best be handled by constant speed motors and slip coupling.

The selection of the proper motor with respect to type, torques, power factor, temperature rise, insulation, voltage, and degree of enclosure can only be made after full consideration is given to such matters as continuity of operation, power cost, available capacity for motor starting, necessity for power factor correction, load torques, load inertia, need for speed variation, and exposure to moisture or corrosive conditions.

TABLE I

TORQUE, KVA. AND SLIP CHARACTERISTICS OF LARGE A-C MOTORS
250 H.P. AND LARGER

	Squirrel Cage Motors similar to					Synchronous Motors				
Characteristics	Nema B 1200 r.p.m. or less	Nema B 3600 or 1800 r.p.m.	Nema C	Nema D	Em "X"	1.0 P.F. 500 r.p.m. or above	1.0 P.F. below 500 r.p.m.	0.8 P.F. 500 r.p.m. or above	0.8 P.F. below 500 r.p.m.	Wound Rotor Motors
Normal locked rotor torque in per cent of full load torque	100 to 150	(1) 75	(2) 200	(3) 275	(1) 60	(4) 85 to 100	(5) 40	(4) 100 to 125	(5) 40	(2) (3) 100 to 140
Approximate starting kva. in per cent of full load kva.	500 to 550	500 to 550	450 to 500	400 to 450	430	550	300	550	300	150-200
Breakdown torque in per cent of full load torque	200 to 225	200 to 225	200	250	175	150	150	200 to 250	200 to 250	225
Nominal slip, full load, in per cent of synchronous speed	2-3	2	3-5	8-15	2	0	0	0	0	3-5

(1) These motors are suitable for coupled duty only. For use with loads which are started substantially unloaded.
(2) These motors develop sufficient torque to start pulpers or beaters.
(3) These motors will start and operate high inertia and peak load applications, such as chippers off small electrical systems, with minimum electrical disturbance.
(4) Lower locked rotor torques with lower starting kva are available for light starting duty loads, such as motor generator sets. Also higher locked rotor torques, with increased starting kva are available for such loads as beaters, pulpers etc.
(5) Higher torques with increased starting kva are available for chippers, vacuum pumps etc.

Squirrel Cage Motor

The squirrel cage motor is the rugged work horse of American industry. It is the simplest possible mechanical and electrical construction and in virtually all cases possesses the simplest type of control. In practically all cases involving motor ratings of less than 1 h.p./r.p.m. it makes for the least expensive installation. Its disadvantages are that it always operates at a lagging power factor which may be objectionably low at part loads, and that it has, in general, a lower efficiency than do synchronous motors; the small air-gap is sometimes objectionable mechanically.

Synchronous Motor

The synchronous motor is more susceptible to design for specific torque, power factor, and starting kva. characteristics than is the squirrel cage motor. It can be designed for low starting and pull-in torques, and consequently low starting kva., when starting duty is light as in the case of pulp grinders, air compressors or motor generator sets; it can be built with a high pull-out torque for high intermittent peak loads as required for chippers. It may be designed, when desired, for operation at leading power factor to offset lagging power factor induction motor loads. This characteristic is relatively inexpensive when applied to high torque motors. The synchronous motor is rugged mechanically, has a

large air-gap, is more efficient than induction motors, particularly at low speeds, and justifies consideration at all motor speeds below 500 r.p.m.; at motor ratings 500 h.p. or above at speeds up to and including 1200 r.p.m. and; in general, where ratings exceed 1 h.p./r.p.m. The principle disadvantages are the more complicated control embodying an excitation control system and a need for a direct current excitation supply.

Wound Rotor Motor

The wound motor (slip ring) motor is used where frequent repetitive starting of high torque or high inertia loads may be necessary, where a high ratio of torque to kva. must be maintained during starting and acceleration, where closely controlled starting and accelerating torque or kva. is required, where speed droop is desired as in the case of certain chipper applications, or where variable speed is desired but where considerable tolerance in speed regulation is acceptable. The wound rotor motor lacks the simplicity, ruggedness and low cost of the squirrel cage motor. It does develop a lot of torque for a given kva. input. It will provide a measure of speed control but unless provided with an elaborate form of feedback control and slip regulator the speed variation in case of load-torque variation may be quite high.

Prime Considerations

Obviously, for each application, there is one best possible motor selection. Our objective is to analyze various pulp and paper mill loads and provide a basis for such selection.

Of prime importance is the ability of the motor to start, accelerate and drive its connected load. Without excessive disturbance to the electrical system and without excessive mechanical shock the motor must be able to:

1. Start the load from rest, taking into account any normal or emergency unloading means.
2. Accelerate to full speed and, in the case of synchronous motors, pull into step without injury to motor or to the driven equipment.
3. Operate under normal load conditions and in normal or reasonably anticipated environmental conditions.
4. Withstand peak loads, normal for the application involved, without injury and without excessive electrical disturbance.
5. If desired, in the case of synchronous motors, re-synchronize after removal of conditions causing the motor to drop out of step.

Table I shows typical torque, starting kva. and operating characteristics of synchronous, wound rotor and various types of squirrel cage motors; Table II gives Nema torque recommendations for pulp, paper mill and associated loads.

TABLE II

SYNCHRONOUS MOTOR CHARACTERISTICS FOR PULP & PAPER MILL AND ASSOCIATED LOADS

	Torque in per cent of full load torque		
Nema Recommended Torques	Starting	Pull-in	(Stalling) Pull-out
Chippers, empty[1]	60	50	250
Beaters	125	100	150
Pulpers[1]	125	125	150
Grinders—unloaded—(magazine)	50	50	150
(pocket)	40	30	150
Jordans and Other refiners (unloaded)	50	50	150
Vacuum pumps (Hytor)	60	100	200
Centrifugal pumps—closed discharge[2]			
(horizontal)	40	60	150
(vertical)	50	60	150
Boiler draft fans (closed discharge)[1]	40	60	150
Air compressor—reciprocating unloaded	40	30	150
Motor generator sets	40	30	200

(1) These are high inertia and WK^2 must be known to make proper application.
(2) Pumps of mixed flow characteristics, associated with low head, high capacity and high specific speed design-constant pumps may require up to 125 per cent of full load torque at closed discharge.
Above torques are recommended for synchronous motors, however the starting torques and stalling torque values will, in general, be applicable for squirrel cage motors also.

Motor Considerations for Specific Types of Load

Chippers

If the power supply will permit, synchronous motors, mounted on or flexibly coupled to the chipper shaft, should be used for driving chippers; however it must be determined that the sudden peak loads will not adversely affect system frequency or voltage.

Based on an 0.8 power factor motor with a pull-out torque of 250 per cent the motor selection may be made on the basis of the following formula:

$$HP = \frac{SND^2LK \times 0.4}{3100}$$

Where S = speed in r.p.m.
N = number of knives
D = maximum log diameter in inches
L = chip length in inches (decimal)
K = horsepower hours required to chip 1 stacked cord of wood.

The starting and pull-in torques are of importance only insofar as they determine accelerating time, as the chipper will always be started empty. On extremely large chippers, (120 inch to 200 inch disks) accelerating time up to 45 seconds may be necessary. The required average net accelerating torque may be determined as follows:

$$T = \frac{WK^2 \times \text{r.p.m.}}{308 \times t}$$

Where T = net average accelerating torque in lb. ft., making suitable allowance for chipper friction and windage (assume friction and windage = 5 per cent of motor rating)
WK^2 = Total flywheel effect, chipper and motor, in lb. ft.^{2}
RPM = Maximum r.p.m. on amortisseur winding (assume 98 per cent speed)
t = Allowable starting time in seconds.

The motor full load torque equals:

$$T = \frac{5250 \text{ h.p.}}{\text{r.p.m.}}$$

The necessary torque for acceleration can then be converted into per cent of motor full load torque.

Engine type synchronous motors with rotor mounted on chipper shaft, are frequently used. Due to axial movement in adjustment of shaft, to compensate for wear of wearing disc, extra width must be provided in collector rings and rotor or stator core.

If desired, field forcing can be used to utilize maximum possible short

time pull-out torque of synchronous motors. The motor can be operated at nominal excitation for normal size logs. If a log requiring maximum pull-out torque appears on the conveyor it can trigger a circuit which will apply peak excitation voltage, and resultant peak pull-out torque, for the duration of peak load.

Low slip (equivalent to Nema design B) squirrel cage motors may be used instead of synchronous motors but on account of the low slip will impose substantially the same load changes on the power system as do synchronous motors during peak load conditions.

High slip squirrel cage motors or wound rotor motors operated with sufficient secondary resistance to provide five per cent slip at full load torque are preferred on systems of relatively small capacity. These motors will slow down, absorbing energy from the rotating inertia of the chipper on high peak loads. Smaller motors may usually be used; the following formula applying:

$$HP = .55\left(\frac{SND^2LK}{3100} - \frac{S^2NLWK^2}{5.25 \times 10^9 \times H}\right)$$

Where WK^2 = Total flywheel effect in lb. ft.^{2}

H = Length of log in feet

Other factors same as for synchronous motors.

An increase in WK^2 will, in general, result in a reduction in required motor rating. However the limit is reached when the motor rating equals the product of maximum capacity in cords per hour multiplied by horsepower hours per cord of wood. Inasmuch as the motor speed may drop 20 to 25 per cent in the case of a maximum size log it is necessary to provide a speed sensitive device which will stop the conveyor until the motor returns to full speed.

Chipper motors are usually not subject to dripping or splashing liquids. Load factor is usually so low that dissipation of heat is not commonly a problem. Protection is occasionally provided against flying chips. However open dripproof construction is usually adequate.

Chippers probably constitute the toughest continuous motor load in industry. Accordingly chipper motors must be exceedingly rugged in construction.

Beaters and Pulpers

Beaters and pulpers are similar in that they require high starting torques. They may be driven by synchronous or squirrel cage motors but wound rotor motors are usually preferred. Due to exposure to dripping and splashing liquids and occasional hosing down these motors should be splashproof.

Pulpers present an additional problem in that they have relatively high WK^2 values in addition to the high starting and accelerating torque requirements.

Grinders

Groundwood manufacture is prodigal in its consumption of power, several hundred kilowatt hours being required per ton of output. Grinder motor rooms with over 50,000 h.p. in installed capacity are not uncommon, individual motors of up to 6000 h.p. per single stone or up to 9000 h.p. for double grinder operation are in common use.

In magazine or pocket grinders, rams actuated by hydraulic pressure force the logs against the stones. In the Roberts grinder an eccentrically mounted, motor driven outer shell performs the same duty. Load sensitive relays may control the hydraulic loading system and maintain constant load.

The starting duty, under unloaded conditions, is very moderate. This combined with high horsepower ratings and low driven speeds makes the synchronous motor the universal choice for grinder drive.

Due to extremely high concentrations of power, normal self air cooling of these motors is not practicable and either enclosed motors with air-to-water heat exchangers or duct removal of cooling air is required.

Limited end play couplings or laminated couplings which do not transmit thrust are recommended in coupling the motor shaft to the grinder shaft.

Jordans and Other Refiners

Drive motors for jordans are universally flexibly coupled to the load. Since the jordans can be unloaded for starting and due to the horsepower and speed characteristics, synchronous motors are usually preferred for these drives. During axial adjustment of the jordan plug some end thrust is frequently transmitted to the motor bearings through the flexible coupling. These thrust values are largely indeterminate but values up to 2000-lb. momentary thrust are occasionally specified and must be provided for in the motor construction.

Refiners have the same general load characteristics but differ in mechanical construction in that the motor rotors are frequently mounted on the refiner shaft and must provide for some axial movement.

Refiner and jordan motors should be splashproof on account of the presence of dripping and splashing liquids and hazards of occasional hosing down.

Vacuum Pumps

Vacuum pumps serving the vacuum boxes and suction rolls associated with the fourdrinier machine are usually of the Hytor type. Although there has been a tendency toward reduction of torque values to 40 per cent starting torque and 60 per cent pull-in torque, experience has indicated that these are not satisfactory for paper mill service due occasionally to incomplete unloading during start.

Reciprocating vacuum pumps are occasionally used and usually 40 per cent starting torque and 60 per cent pull-in torque are adequate. Starting and pull-in torques of 125 per cent have been applied to rotary, positive displacement vacuum pumps.

There has been a strong trend toward multiple operation of vacuum pumps — some installations driving eight units by one motor.

Vacuum pump motors are exposed to dripping and splashing liquids and to occasional hosing down. They should be splashproof or, in the case of large motors (1000 h.p. or larger) they may be enclosed and water cooled.

Pumps

The mills use tremendous quantities of water; the mixture going to the head box of the fourdrinier machine being over 99 per cent water. As a result, hundreds of centrifugal pumps are used in the mill, varying from low volume and high head pumps for hydraulic control of grinder ram pressure to low head, large volume stock pumps. The latter frequently have mixed flow characteristics and should not be started or driven with closed discharge as the pressures developed and the motor horsepower required may be excessive.

Precisely controllable, variable speed stock or fan pumps may be driven by constant speed motors and magnetic slip couplings.

Most process pumps are in areas which require splashproof motor characteristics; however in many cases motors and pumps are installed outdoors, and motors suitable for outdoor operation must be used.

Boiler feed pumps used in the

power plant, are usually 3600 r.p.m. Extra long journals and limited end-float couplings are commonly used to prevent damage to motor bearings resulting from pump shaft expansion as the pump warms up.

Reciprocating Air Compressors

Compressed air, at a nominal pressure of 110 p.s.i.g., is required around paper mills, and reciprocating compressors are commonly used in this connection. In ratings to about 2000 c.f.m. the driving motors are commonly flange mounted. The motor rotor is mounted on the compressor shaft extension and the stator frame is attached to a flange cast on the compressor frame.

Larger units are commonly horizontal, two stage, double acting with the engine type rotor mounted between the compressor cylinders, being clamped on to the compressor shaft, and with the stator feet resting on soleplates grouted into the foundation.

Such compressors are started unloaded and low torques are adequate. However a reciprocating compressor load is inherently of a pulsating nature and must be taken to provide the proper amount of flywheel effect to avoid excessive current variation or resonance between natural and forcing frequencies.

Since these compressors are commonly installed in clean, dry locations the motors are usually open frame construction. In ratings to about 2000 c.f.m. the drive motors are commonly flange mounted. The motor rotor is mounted on the compressor shaft extension and the stator frame is attached to a flange cast on the compressor frame.

Motor Generator Sets

Large synchronous motors are commonly used to drive direct current generators in providing power for paper machine drives. Torque requirements are moderate, although 200 per cent pull-out torque is commonly required. Such units are commonly installed in clean, dry areas and no special construction is required.

Protective Construction

Pulp and paper mills notoriously provide undesirable locations for motor installation. Dripping and splashing liquids, frequently with chemicals or pulp content, abound in many mill locations. Even though insulations may be used which are resistant to moisture and chemicals the problem of plugging of vent ducts with pulp exists. As a result splash-proof construction is a minimum for many locations and some larger important motors are totally enclosed—water-cooled.

More and more motors are being installed outdoors and Nema 2 outdoor protective construction has been used. However new moisture resistive insulations are now being used which permit motors to be installed with minimum protection—somewhat on the order of dripproof guarded.

Important motors should be provided with space heaters to prevent condensation during shutdown periods.

TABLE III

LARGE MOTOR APPLICATION RECOMMENDATIONS FOR PULP & PAPER MILL DRIVES

Application	Preferred Drive	Factors In Selection	Enclosures	Typical HP	Typical R.P.M.
Chippers	Synchronous Wound Rotor	Should be synchronous unless system capacity is limited, then should be wound rotor or high slip squirrel cage.	Open type usually satisfactory. Protection against flying chips may be desired.	250 to 2000	600 to 277
Beaters & Pulpers	Wound Rotor or High Torque Squirrel Cage	High starting and accelerating torque is required. If Power Factor correction is necessary may use high torque synchronous motors.	Splash-proof.	250 to 400	720 to 600
Jordans & other Refiners	Synchronous	Low starting torque requirements; synchronous first choice, may use squirrel cage. Thrust bearing may be required.	Splash-proof.	250 to 1000	360 to 1200
Grinders	Synchronous	Unloaded starting, excellent synchronous motor application.	Enclosed water cooled on duct ventilated.	1000 to 6000	257 to 240
Vacuum Pump	Synchronous	Present trend is toward use of one motor to drive several vacuum pumps.	Splashproof — enclosed water cooled 1000 h.p. or above.	250 to 1750	720 to 180
Centrifugal Pumps	Squirrel Cage all 1800 & 3600 r.p.m. Synchronous all lower speeds	Low starting torque. Medium or high pull-in torque. Mixed flow pumps high pull-in torque. For precise speed control use magnetic slip couplings.	Splash proof. In some cases installed outdoors.	250 to 1250	360 to 3600
Fans (Boiler Draft)	Squirrel Cage Synchronous Wound Rotor	If variable speed may use constant speed motor and magnetic slip coupling. Wound rotor may be used.	Drip proof or outdoor.	250 to 600	1200 to 900
Air Compressors Vacuum Pumps (Reciprocating)	Synchronous Squirrel Cage	Flange mounted may be squirrel cage or synchronous. Engine type all synchronous.	Open or drip-proof. For vacuum pumps should be splash-proof.	250 to 500	514 to 277
Motor-Generator Sets	Synchronous	Excellent synchronous motor application.	Open or drip-proof.	250 to 1000	1800 to 1200

Insulation

Standard Class A and Class B insulations with temperature rise of 40°C. and 60°C. have been used for years; these provide for service factor in 40°C. ambients. However the moisture and chemical conditions are detrimental to long insulation life. It is unusual for a mill to start, after a complete shutdown, without loss of at least one motor due to insulation failure.

Silicone elastomer insulations have been developed which are highly resistant to moisture and chemical environments. They make it possible

TABLE IV

GUIDE TO MOTOR VOLTAGE

Volts	R.P.M.	Induction	Synchronous
601-3000	3600	250	——
	1800 or less	250	250
3001-5000	3600	350	——
	1800 or less	300	250
5001-7000	3600	1000	1500
	1800 or less	800	600
7001-13200	3600	——	2500
	1800-1200	5000	2000
	900 or less	3000	2000

to install motors outdoors with a minimum of protective construction.

Loss Dissipation

Concentration of motor horsepower, and consequently of motor losses, poses a real problem in prevention of excessive ambient temperatures. Large grinder motors and motors for multiple vacuum pump drive are commonly enclosed and provided with air coolers or are arranged for exhaust ducting. However jordan and refiner motors are frequently installed in multiple groupings of 12 to 20 motors. They are frequently of splashproof construction and are so installed that recirculation of cooling air is inevitable; occasionally accompanied by an increase in ambient temperature of 10°C. to 20°C. and a resultant expected decrease in insulation life to one half or one quarter of what it would otherwise be. Certainly, in such cases, heated motor discharge air should be, in some fashion, directed away from air intake for adjacent motors.

Power Factor

Fortunately, paper mills usually do not have serious power factor problems. Their requirement for large, and frequently low speed, motors which are inherently suited for synchronous motor drive automatically provide good power factor. Also many of the induction motors are large and operate at high load factors, all contributing to a low value of lagging kvar. Most mills can maintain 0.9 power factor by judicious selection of the principal motor drives and that is about as far as it is economic to go.

Repetitive Starts

One of the factors which plagues the motor designer in attempting to make full use of the capabilities of high temperature insulations is the reduced physical size of the motor resulting from such designs. This reduction in size inevitably results in a reduced heat absorption capacity in the squirrel cage winding to withstand repetitive starting, especially with high inertia loads. On each start from standstill the rotor must absorb in heat loss:

$$H = \frac{.232 \times WK^2 \times (RPM)^2}{10^6}$$

Where H = Kw seconds

WK^2 = Total inertia referred to motor shaft r.p.m.

RPM = Full load motor r.p.m.

The above is the heat absorption due to inertia alone. In some cases this value may be increased a significant amount by the load torque required by the driven unit during acceleration. In the extreme cases a motor may not withstand two successive starts, without an intervening cooling off period, without the possibility of rotor cage damage. Operating departments should be clearly advised as to motor starting limitations in critical cases.

Voltage

In some cases the decision must be made as to whether the motor should be installed on a high or a low voltage system. Table IV may provide a general guide as to such application limitations.

Further Wage Settlements Announced

Several companies and unions have announced reaching agreement on their wage contract negotiations since those reported earlier in PAPER TRADE JOURNAL (June 15 issue).

Union members in International Paper Co.'s ten southern division mills have completed ratification of their proposed agreement. The two-year pact calls for seven cents now and eight cents in 1960, plus a seventh paid holiday and other fringe benefits.

On the West Coast, nearly 20,000 employees approved an Uniform Labor Agreement covering 46 mills in California, Oregon and Washington. The 11½c package pact specified 5½ to 14½ cents hourly increases, a seventh paid holiday, with time and a half for all holidays worked. The companies would also contribute 90 per cent of the cost to the health and welfare program.

Other accords reached are:

American Boxboard Co., Grand Rapids, Mich.; an increase of three per cent on all rates averaging to plus seven cents hourly.

Ashland Paper Mills, Ashland, N. H.; 3 cents now, 1 cent in November, plus a funeral leave clause.

Badger Tissue Mills, Kaukauna, Wis.; four per cent general wage increase amounting from 7 to 9 cents, plus classification adjustments.

Crane & Co., Inc., Dalton, Mass.; Byron Weston Co., Dalton, Mass.; Hurlbut Paper Co., South Lee, Mass.; Parsons Paper Div. (Nat'l. Vulcanized Fibre Co.), Holyoke, Mass.; pay increases of 8 to 10 cents, seventh paid holiday, plus vacation eligibility modifications.

Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.; one-year pact provides 7 to 12 cents (3½ per cent) general wage increases covering CWP&P's seven plants. Includes vacation eligibility modifications and increased retirement benefits.

Erving Paper Mills, Erving, Mass.; 7 to 9 cents retroactive to May 5, plus vacation eligibility modifications and classification adjustments.

Haverhill Boxboard Co., Haverhill, Mass.; in process of ratifying two-year pact with three per cent raise at a minimum of 6 cents; three per cent again in 1960.

Keyes Fibre Co., Waterville, Maine; general wage increase of three per cent, equivalent to 5 to 7 hourly.

Kieckhefer-Eddy Div. (Weyerhaeuser Timber Co.), Westbrook, Maine; 6 cents retroactive to December, 1958, with classification adjustments varying between 4 to 12 cents.

Knowlton Bros., Inc., Watertown, N. Y.; four per cent or an average of 7.3 cents, plus vacation eligibility and insurance plan modifications.

Ohio Boxboard Co., Rittman, Ohio; 6 cents hourly general wage increase.

Philadelphia Container Association; incl. Connolly Container Corp., David Weber Co., Stone Container Corp., Kennar Container Corp., and United Container Corp.; three year pact, three and one half per cent now (6 cents minimum) and classification adjustments worth up to 11 cents; three per cent increase the second year (6 cents minimum), and three per cent the third year (6 cents minimum).

Carnie Steps Up

paperboard cartons and packages of charcoal briquets. The company also

St. Regis Plans Acquisition

NEWS OF CONVERTERS

KVP Announces Promotions At Houston Plant

Robert D. Caine, vice president of manufacturing, announces the appointment of Allen W. Krogel as plant manager for KVP's converting plant in Houston, Tex., and Glenn Quigg as manufacturing superintendent.

Mr. Krogel, in his new capacity, will be responsible for all manufacturing operations. Appointed as administrative assistant to the plant manager in August 1957, he was named acting plant manager in 1958.

Mr. Krogel joined KVP in March 1953, as a general helper in the wax division at the company's Kalamazoo plant. After graduation from Western Michigan University (Kalamazoo) in June 1956, he was named a supervisor in the wax division and then transferred a year later to the printing division as a staff assistant. Until his first appointment at the Houston plant, he received additional experience in all phases of converting operations at the Kalamazoo plant.

Mr. Quigg joined KVP in June 1920 as a helper in the Kalamazoo plant's wax print shop. He was transferred as a supervisor to the Houston plant in October, 1938.

Sherlock Gets New Post At Continental Can

John J. Sherlock has been named manager of bleached board development at Continental Can Co., specializing in bleached board coordination and procurement, it was announced by C. B. Stauffacher, executive vice president of the Robert Gair Paper Products Group.

Mr. Sherlock will also continue to perform certain duties in his capacity at purchasing manager of production materials. He replaces George S. Johnston, former bleached board development manager, who has resigned to accept other employment.

Continental Can is currently constructing a bleached board mill at Augusta, Ga. which is scheduled to commence operations in late 1960. The mill will manufacture 350 tons daily of bleached paper and board for food packaging use.

C. M. Thacker

Thacker Is Technical Dir. At Taylor Fibre

Carlisle M. Thacker, formerly an engineering consultant with E. I. duPont de Nemours, has joined Taylor Fibre Co., Norristown, Pa., as technical director.

He will be in charge of all research, product development and quality control activities for the firm, a leading producer of laminated plastics and vulcanized fibre with plants both at Norristown, Pa., and at LaVerne, Cal.

Dr. Thacker — awarded a Ph.D. in physical chemistry in 1930—has been associated with the plastics, chemical and oil industries for many years, most recently (1950—1959) serving as an engineering consultant in duPont's engineering department at Wilmington, Del., and serving with the organic chemicals department in planning and technical economic evaluations. Earlier associations include Allied Chemical Co., where he served from 1946—1950 as pilot plant director at Hopewell, Va., and the Pure Oil Co., Chicago, Ill., where he was group leader from 1936 to 1946.

Control of Williams Co. Changes Hands

Control of the R. R. Williams Co., which has flourished since going to Canaan, Conn., from New York in 1955, has changed hands in a proxy fight.

A successful attempt by anti-management forces headed by J. D. Silberman, Greenwich, Conn., climaxed the proxy fight for control of the paper product firm which last month turned down a $1.3 million offer to sell.

The R. R. Williams firm makes a "Wash-'N'-Dri" paper product which contains a cleansing agent and is used on the face and hands. The product is now used by 55 airlines.

St. Regis To Acquire Lone Star Bag

St. Regis Paper Co. has filed with the Securities and Exchange Commission a registration statement relative to the issuance of shares of St. Regis common stock to be offered in exchange for the 44,235 outstanding shares of common stock of Lone Star Bag & Bagging Co. of Houston, Tex.

Lone Star owns approximately 83 per cent of the outstanding capital stock of Wagner Bag Co., Inc., of Utah, and 43.7 per cent of the outstanding capital stock of Lubbock Bag Co. of Lubbock, Tex.

Lone Star manufactures and sells multiwall paper bags, burlap and open mesh textile bags, and cotton bale covering and steel ties. The products manufactured at its Houston plant are sold primarily to industrial plants, cotton seed oil mills, and fruit and truck farm associations along the Gulf Coast and Rio Grande Valley areas of Texas. The Lubbock and Wagner operations are similar to those conducted by Lone Star at Houston. Products manufactured at the Lubbock plant are sold primarily in the Texas Plains area and to some extent in New Mexico and Colorado. The Wagner plant at Salt Lake City, Utah, serves customers in Utah, Idaho, and Colorado primarily.

Weyerhaeuser Makes Wurster Asst. to V-P

W. A. Wurster, formerly of Moorstown, N. J., has been named assistant to the vice president of Weyerhaeuser Timber Co. Mr. Wurster will work in the Kieckhefer-Eddy division of the company, with headquarters in Tacoma.

After graduation from Beloit College, Wis., Mr. Wurster joined Kieckhefer-Eddy at the Delair, N. J., shipping container plant. He later managed plants in Buffalo, N. Y., Melrose, Mass., and New York City. From 1938 to 1948 he supervised sales in the New York City area. Since 1948 he has been eastern sales manager of shipping containers with an office in Camden, N. J.

with Albany Felt chemical treatments and synthetics

Carnie Steps Up At Latex Fiber

James M. Carnie has been appointed superintendent of the fourdrinier and saturating department of Latex Fiber Industries. Mr. Carnie has been with Latex Fiber Industries since it was established in Beaver Falls, N. Y., in 1932. Prior to that time he was on the staff of United States Rubber Co.'s central research and development group.

Latex Fiber Industries manufactures rubber latex bonded fiber materials that are employed by the bookbinding, leather, shoe and gasket industries.

Moore Will Head Sales For American Paper

J. N. Moore, former Youngstown truck executive, has been named sales manager of the American Paper Products Co., 8401 Southern Blvd., J. Stanley Probst, executive vice president, announced.

Hampden Glazed Names Fowler Plant Supt.

Timothy H. Fowler, has joined the Hampden Glazed Paper & Card Co., Holyoke, Mass., as plant superintendent.

Mr. Fowler comes to Hampden from Camp Mfg. Co. of Baltimore Md., makers of tablets, stationery and school supplies, where he was superintendent.

Prior to the Camp Co. post, he was employed as assistant superintendent of Central States Division of U. S. Envelope Co. in Indianapolis, Ind.

Ellis Joins Diamond Gardner as V-P

Lawrence L. Ellis has joined Diamond Gardner Corp. as vice president and comptroller of the company's Molded-Packaging Division.

Mr. Ellis, who is originally from Greenwich, Ohio, graduated from Western Reserve University (Cleveland). In 1943 he joined Booz, Allen and Hamilton, management consultants, as a consultant. For the past eight years he has been a partner in the firm.

Diamond Gardner's Molded-Packaging Division manufactures and sells molded-pulp products including trays, egg cartons, plates and many other items. The company's other divisions produce lumber, woodenware, matches, paperboard, folding paperboard cartons and packages of charcoal briquets. The company also sells lumber and building supplies through 86 retail stores and outlets located on both coasts.

Hinde & Dauch to Open Two Corrugated Box Plants

Two new corrugated box plants for the container division of West Virginia Pulp and Paper Co., one in Torrance, Calif., one in Phoenix, Ariz., will be opened as soon as the necessary production facilities can be installed. The new plants will bring to 17 the number of box factories operated by West Virginia's Hinde & Dauch Division.

The Phoenix plant, to be located at 1310 North 22nd Avenue, is scheduled to be in production in November. The Torrance plant, at 555 Maple Avenue, will be operating by January 1 of 1960. Work on both plants is being expedited in response to the large and growing demand for the company's M/R board, a recently developed moisture resistant corrugated board finding wide acceptance among fruit and produce packers in California and Arizona. M/R board is currently being shipped west from Kansas City.

The new box plants will augment long established western facilities of West Virginia Pulp and Paper Co. The company has maintained paper sales headquarters in San Francisco since 1925, and opened a new multiwall bag and grocery bag manufacturing facility in Torrance in June of 1958.

Quarters for the Torrance box plant are being constructed adjacent to the multiwall bag plant. The multiwall and grocery bag plant produces Wonderwall and Kraftsman bags from Clupak stretchable paper.

The two new plants are part of an over-all company move toward national distribution of corrugated containers. The 15 Hinde & Dauch plants are now located in Baltimore, Buffalo, Chicago, Cleveland, Detroit, Eaton, Ohio; Gastonia, N. C.; Gloucester City, N. J.; Hoboken, N. J.; Kansas City, Kansas; Meriden, Conn.; Richmond, Va.; St. Louis, Mo.; Sandusky, Ohio; and Watertown, Mass.

West Virginia's Hinde & Dauch Division is now represented by a sales office in Bakersfield, Calif., under the direction of S. B. Carnine. The new box plants will become a part of the division's westernmost region, under the management of Charles D. Sparks, with headquarters in Chicago. Each plant will have its own sales organization.

St. Regis Plans Acquisition of Chemical Packaging

St. Regis Paper Co. has filed with the Securities and Exchange Commission a registration statement relative to the issuance of shares of St. Regis common stock to be offered in exchange to shareholders of Chemical Packaging Corp., Savannah, Ga.

The proposed offer would provide that if the exchange offer is declared effective, a total of not exceeding 20,000 shares of St. Regis common stock would be issued on the basis of one share of St. Regis stock for 5½ shares of Chemical Packaging stock.

Chemical Packaging manufactures and sells multiwall paper bags primarily for packaging chemical fertilizer to manufacturers in the southeastern area of the United States. Chemical's two bag plants are located at Savannah, Ga., and Louisville, Ky. Sales of Chemical Packaging in 1958 were in excess of three million dollars.

Acquisition by St. Regis of the shares of Chemical common stock will provide St. Regis with additional bag manufacturing facilities for serving customers in the southeastern area of the United States and extend the multiwall bag business of St. Regis into an area which includes manufacturers of chemical fertilizer not presently served by St. Regis.

Rap-In-Wax Adds Development Chemist

Effective June 1, William Sibbach joined Rap-In-Wax Paper Co. Minneapolis, as development chemist.

A graduate of Northwestern University, where he majored in chemistry, Mr. Sibbach had done research and development work for Tee-Pak, Inc., a packaging firm, and for the Research Laboratories of the Kraft Foods Co. Most recently, he has been internal administrator of Grocery Product Development for the Pillsbury Co.

Southern Paper Buys Distribution Business

Southern Paper & Supply Co., has purchased the paper distributing business of Consolidated Paper & Box Mfg. Co., in Richmond, Va., effective May 4th. Consolidated will continue to make boxes and will enlarge that phase of its operation.

The purchase of part of Consolidated's business is not a merger and will involve no financial connection between the firms.

with Albany Felt chemical treatments and synthetics . . .

YOU CAN GO IN

TWO DIRECTIONS

AT ONCE!

POROSITY ← → STRENGTH

U-31 K-3 NYLON H-12 J-3 ORLON H-12 Z-5 DACRON W-6 U-55 H-14

At last, the ideal balance between *strength* and *drainage* in felt design can be obtained. With Albany's patented synthetic content design, greater resistance to abrasion is provided *and* Albany's special chemical treatments reduce the natural tendency of the synthetic yarns to be non-absorbent. Thus, two opposite aims can be reached simultaneously.

Most important to you, this combination of synthetics and chemical treatments can put your machine way ahead in production. Remember, Albany Felts not only last longer, they also give you *more tons per day.*

Start the wheels rolling toward maximum felt life and high daily production in *your* mill. Consult your Albany Felt Sales Engineer. Working with him is the team of experts who wrote the book — "Improved Felt Performance!"

If you have not received your copy of Albany's newest technical handbook "Improved Felt Performance" write for it today.

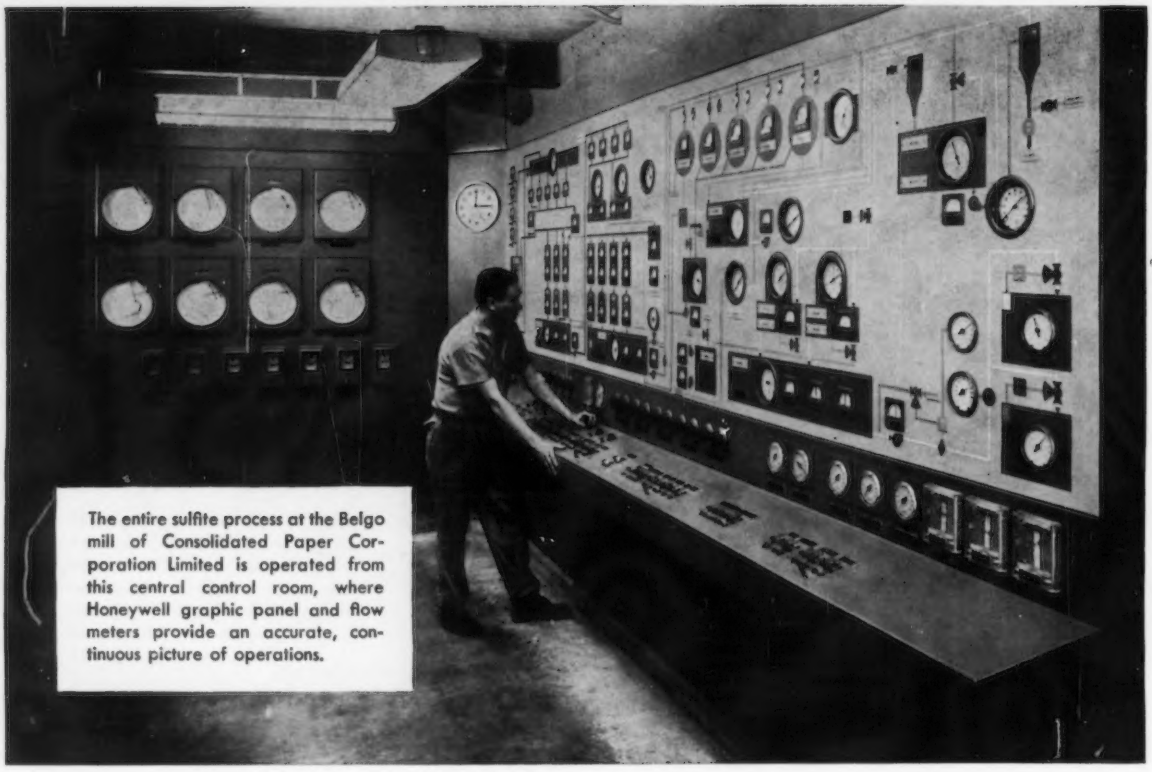
AF

ALBANY FELT COMPANY

MAIN OFFICE AND PLANT, ALBANY, N. Y.

OTHER PLANTS: HOOSICK FALLS, N. Y.; N. MONMOUTH, ME.; ST. STEPHEN, S. C.; COWANSVILLE, P. Q.

NEW IDEAS FOR BETTER PAPERMAKING—FROM THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS



The entire sulfite process at the Belgo mill of Consolidated Paper Corporation Limited is operated from this central control room, where Honeywell graphic panel and flow meters provide an accurate, continuous picture of operations.

Consolidated Paper Corp., Ltd., increases yield with new, Honeywell-controlled sulfite process

The new high-yield sulfite process is bringing a 20% production increase, a 30% chemical saving, and a great reduction in steam use to Consolidated's Belgo Division, Shawinigan, Quebec, Canada. This commercial application of the process features a complete Honeywell control system.

The new process consists essentially of a shortened sulfite cook after which the fibres are "rubbed" to a pulp by mechanical refiners. Much of the lignin and hemi celluloses that would normally be removed at the end of a standard cook are retained. The process operates on three floors of the Consolidated mill, yet, with the highly centralized Honeywell instrumentation, requires only one operator and an assistant.

Your nearby Honeywell field engineer will be glad to discuss your mill's instrumentation needs in installing the new high-yield sulfite process. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.

Honeywell

H HONEYWELL *First in Control*

ken #643 flat-back tape is printable,

Groundwood Discussions At Canadian Meeting—Delayed from the June 29th report of this convention

Pitless Grinding was the subject of a panel presentation under the guidance of Ian McArthur, chairman of the mechanical pulping committee. Pitless grinding refers to the operation of the pulp grinder without any degree of submersion in the pit of freshly made groundwood as is customary. Classical grinding has the stone dipping into a pool to some depth which may vary from one to six inches. Pitless grinding has been employed at a few mills in Scandinavia for several years, notably at the Risor Pulp Mill, Risor, Norway, and the high production rate achieved has been credited to this technique.

W. H. de Montmorency described some mill trials conducted by the Pulp and Paper Research Institute of Canada in which grinding was done on a chain grinder at stone loadings, greatly in excess of normal Canadian newsmill practice under conventional and pitless conditions. Generally high production rates were achieved but there were rather sharp variations in the rates and in pulp quality. At the lower of the rates under high load, which were still very much higher than normal, pulps of reasonably acceptable properties were achieved at normal specific-energy expenditure. These trials were limited to eight low periods and can only be considered on an exploratory basis.

T. W. Dobson, Donnaconna Paper Co., Donnaconna, P. Q., described a mill trial of pitless grinding extending over five months at normal, at a bit above normal loads, using a Waterous Super-hydraulic grinder. Pulp quality was satisfactory, although slightly below normal for the mill, and specific energy consumption was normal. These trials are being continued and expanded.

I. M. Arthur told of a mill trial on a list of chain grinders operated at normal loads, which had been in progress for several months. Pulp quality was satisfactory and there appeared to be some power savings. These trials, also, are being continued.

R. M. Murley, Bowater's Newfoundland Pulp and Paper Mills Ltd., Corner Brook, Nfld., described some preliminary trials of pitless grinding at loads above the normal mill level in which there was a production increase, but not as great a one as expected, and power costs were higher than normal. These trials will be continued and expanded. All speakers agreed that there were no real operating problems involved in pitless grinding as long as an ample supply of high pressure shower water was available.

The chairman then called on Christian Anker of the Risor Pulp Mill, Norway, for his comments, as he has been the chief proponent of pitless grinding. Mr. Anker discussed his development of the technique over the past ten years and went on to describe the recent start-up of the new Bowater's groundwood mill at Ellsmere Port in England, employing the pitless technique. Although this mill has been in production for a short time, the high production rates and good power costs of the Risor mill are being confirmed. (We were intrigued by the fact that Mr. Anker phoned the mill in England the day before he talked in order to check that the new operation was still proceeding satisfactorily.)

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	May 30	June 6	June 13	June 20	June 27
1959	91.7	93.8	95.3r	96.3r	94.7
	May 31	June 7	June 14	June 21	June 28
1958	81.3	82.2	88.4	89.2	88.0

r Revised.
c Corrected.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8	90.5	93.2‡	94.4‡	95.5‡	—	—	—	—	—	—	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.0	90.4	93.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	91.9	93.5	93.2	95.9	101.1	94.6	87.1	92.5
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	May 30	June 6	June 13	June 20	June 27
1959	97	88	98	98	98
	May 31	June 7	June 14	June 21	June 28
1958	83	77	90	88	89

COMPARATIVE MONTHLY SUMMARIES

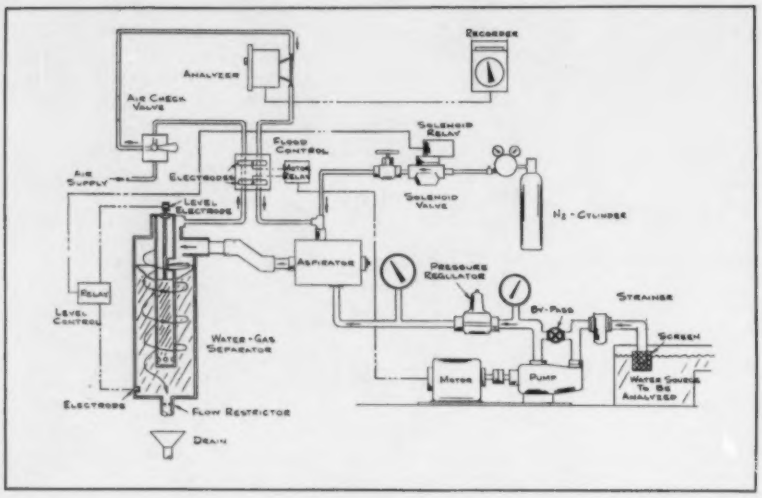
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	86	93	95	93	96	—	—	—	—	—	—	—	—
1958	80	86	88	84	84	86	76	93	90	95	92	81	86

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING June 27, 1959	LAST WEEK ENDING June 20, 1959	CUMULATIVE TO DATE Jan. 1 to June 27, 1959 incl.
% Activity	98%	98%	93%
TOTAL	323,657	327,830	7,769,852
Liner	109,805	120,712	2,656,118
Corrugating Material	47,572	49,002	1,175,557
Chip & Filler Board	6,717	5,718	132,071
Total Containerboard	164,094	175,432	3,963,746
Folding	63,484	57,205	1,438,974
Set-Up	12,352	12,118	295,094
Special Food Board	28,699	28,329	714,881
Other	55,028	54,746	1,357,157
Total Boxboard	159,563	152,398	3,806,106
Total Orders			
Received	306,242	295,404	
Unfilled End of Week	478,629	495,750	

PJT NEW EQUIPMENT & SUPPLIES



Oxygen Meter Analyzes Surface Waters

A Dissolved Oxygen Meter which automatically analyzes and continuously records dissolved oxygen in surface waters is now available from The Hays Corp., Michigan City, Ind. Based on Henry's Law which, in effect, states that the partial pressure of oxygen in the gas above the water surface is a direct measurement of the amount of oxygen dissolved in the water. The analyzer consists of three basic units: Model 627 contact sampler, Model 631 Magno-Therm analyzer, and Model 771 universal recorder. The contact sampler is located on a single detachable plate mounted on the rear of the Magno-Therm analyzer.

All low pressure interconnecting tubing is of clear plastic to allow ready observation of sample flow. Hays Model 631 analyzer utilizes the paramagnetic characteristic (attraction by a magnetic field) of oxygen in its operation. With no moving parts and no reference gas or liquid required for operation and its measuring resistors sealed in glass, this Analyzer is said to be practically maintenance-free. The analyzer is connected to the recorder which indicates the dissolved oxygen content of the water in per cent of saturation, standard range being 0-15 per cent.

The Hays meter reputedly features accuracy better than 2 per cent of full scale range, with fast response to changes (time constant of 100 seconds). Analysis is not influenced by temperature, salt content, pollution, aeration constant, barometric pressure, or the dissolved nitrogen content of the water, states Hays.

Five Paper Tapes Added to Line

Now, with the addition of two crepe back and three flat back tapes, Polyken offers a complete line of paper tapes. These are available along with Polyken #620, the utility tape for sealing, masking, bundling and packing.

Polyken #621 crepe-back, high-temperature tape has application for masking or sealing prior to high temperature baking or drying. Polyken #622 stain resistant tape is for use on surfaces where discoloration is possible. It is claimed ideal for holding in shipment. Polyken's #641 high strength flat-back tape is used for heavy duty holding and sealing applications, and for strapping. Polyken #643 flat-back tape is printable, available in assorted colors and is used for packaging or sealing where identification is required or helpful. For further information, write to Polyken Sales Division, 309 W. Jackson Blvd., Chicago 6, Ill.

Jumbo-Sized Napkin Folder

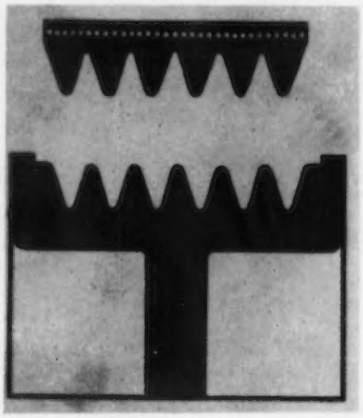
One of the latest converting machines produced by the Hudson Sharp Machine Co., Green Bay, Wis., is a jumbo-size napkin folder for producing 24-inch paper medical and dental bibs.

The machine operates from three parent rolls with web widths up to 24 inches and provides napkin cutoffs up to 24 inches, states Hudson. It processes 3-ply facial tissue stock and embosses each paper web in separate embossers for each of the three delivery decks of the folder.

Grooved V-Belts for Light Duty Work

Manhattan Rubber Division of Raybestos-Manhattan, Inc., reports the introduction of the Poly-V "J," especially designed for high-speed (10,000 f.p.m. or r.p.m.), small-pulley, power transmission applications.

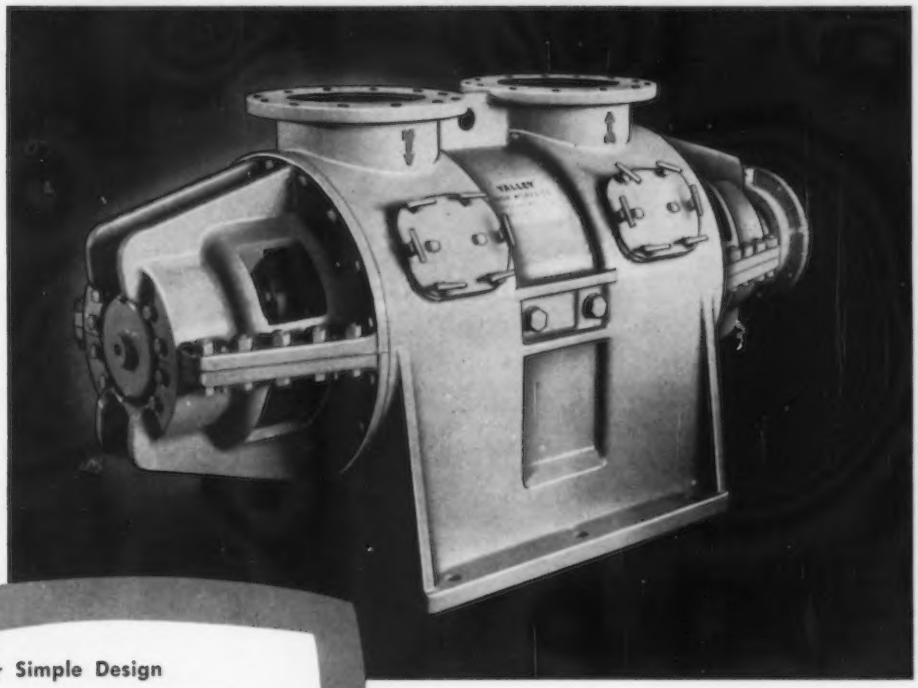
The belt is thin and flexible, and



retains all the advantages of standard Poly-V drives. It will operate over sheaves as small as 0.8-inch pitch diameter. Pitch lengths range from 8 inch to 98 inch. Poly-V "J" is designed to deliver power with substantially less belt width than would be required using a standard belt drive. This economy is reportedly accomplished through application of a single endless rubber belt with a series of parallel V-ribs molded lengthwise around the inside circumference. Sheave grooves are designed to mate with the belt ribs, and the load is evenly distributed across the

NEW VALLEY DEFIBERIZER

a machine specifically designed for defibering pulps



★ Simple Design
★ Low Horsepower
★ Rugged Construction
★ Stainless Steel Tackle

DO YOU HAVE A DEFIBERING PROBLEM?

Paper machine broke

Waste paper

High yield pulps

Consult... **VALLEY IRON WORKS COMPANY**
APPLETON, WISCONSIN

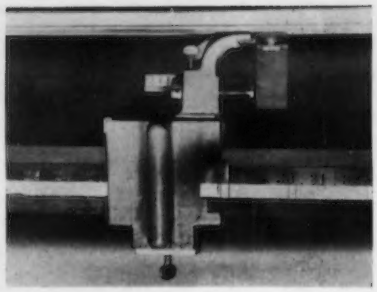
full width of the drive member.

The manufacturer also claims these advantages: requires less space, quiet vibrationless drive, positive tracking, small mounting clearance and take-up requirements, overload slip protection, and good resistance to heat and oil. Poly-V "J" is recommended for any belt drive application except where variable pitch or adjustable sheaves are required or where positive speed ratios are essential. Descriptive bulletin M142 is available upon application to Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N. J.

Signal Setting for Spacer Cutters

A device that enables the operator to set up a cutting sequence on any V65 Lawson Electronic Spacer Cutter without moving the back gauge through the various cutting positions has been announced by The Lawson Co.'s division of Miehle-Goss-Dexter, Inc. The Rapid Signal Setter is said to offer distinct time-saving advantages while enabling the signals to be set with hairline accuracy.

Signals can be set up in two ways, either from given scale dimensions

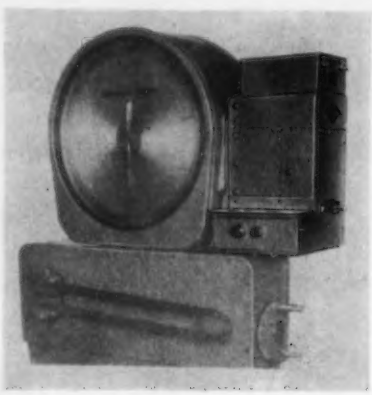


or by taking a strip from the job with the cut marks already printed thereon, and pasting it on the scale bar.

In either case, the operator simply places the device on the scale bar until the hairline on the device registers on the desired cut dimension. He then slides the electronic signal on the hexagonal spacer bar over until it is flush with the plunger face. This process is repeated until all signals are in place. The Lawson Co., 2011 Hasting Street, Chicago, Ill.

Weight Detector Attaches to Dial Scale

Fairbanks, Morse & Co. announces its electronic weight detector for application to its dial scales. This is



designed to provide the bridge between manually controlled and truly automatic weighing processes.

The Fairbanks-Morse Electronic Weight Detector is changed to determine definitely that the correct weight has been reached before allowing the weight to be recorded; read out equipment to be operated; controls for conveyors, hoppers, mixers and other machinery to be operated; thereby assuring correct weighing without visual observations. Full details may be obtained from Fairbanks, Morse & Co., 600 South Michigan Ave., Chicago 5, Ill.

SALES REPRESENTATIVES

W. E. Greene Corporation
4003 Woolworth Building
New York 7, New York

Buffalo Rubber & Supply, Inc.
P. O. Box 465
Buffalo 5, New York

Charles S. Connington
P. O. Box 698
Barre, Massachusetts

R. T. Barnes, Jr.
1523 Chapin Avenue
Burlingame, California

Pulp & Paper Mill Accessories Ltd.
P. O. Box 903, Station "O"
Montreal 9, Canada

E. & M. Lamort Fils
Vitry-le-Francois
(Marne) France

Joseph Winterburn Ltd.
Albert Works
Brook St.
Bury, Lancs., England

There's more to a Lodding Doctor than meets the eye

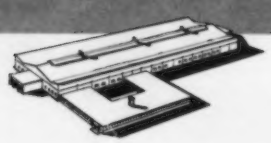
Few qualifications for manufacturing count more than experience. And when experience has been concentrated within a specialized line of endeavor it adds value to the product.

Lodding Doctors carry that extra value derived from experience — experience accumulated over thirty years of specialization in the manufacture of doctors, doctor blades, blade holders and their accessories. During this period, Lodding has built and installed doctors for every conceivable doctoring application, under all conditions and of every type and size, up to and including the Great Lakes Paper Company's 340 inch newsprint machine.

Installations of Lodding Doctors are found in nearly every paper mill in this country and in many mills abroad. Each was precision engineered and precision manufactured for the specific roll being doctored.

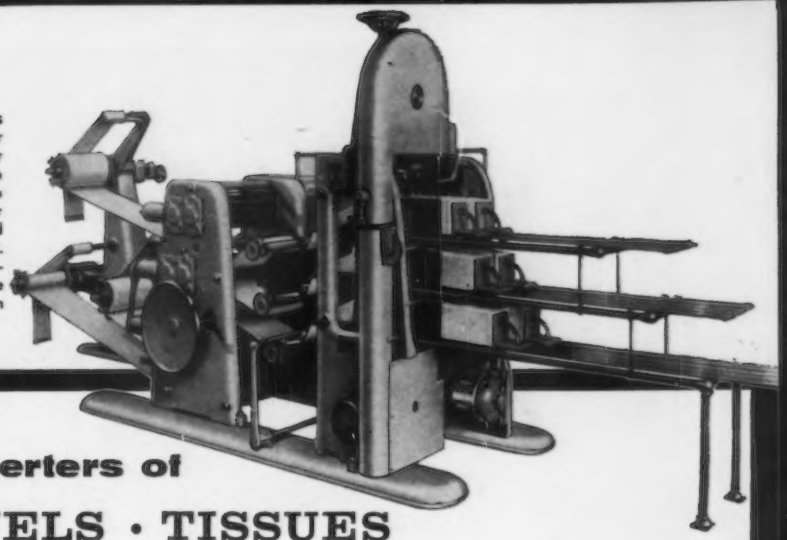
Doesn't it make sense to rely on specialized experience? Most mills have found that it does. Next time, get Lodding Doctors. Then you'll profit too.

LODDING
Engineering Corporation
AUBURN, MASSACHUSETTS



A NAPKIN FOLDER WITH TRIPLE EMBOSSER

Pacemaker for the industry, this machine produces regular or facial quality napkins (and other paper or cellulose products) of all standard sizes in perfectly folded squares. Rotary in operation, it handles one to four parent rolls simultaneously and produces up to 2400 completed printed and embossed napkins per minute! Multi-color oil or flexographic ink printing and embossing units can be furnished or added as required. Heavy duty construction, high production speed, dependability, low original cost plus low maintenance expense makes this machine the most popular napkin producer in the industry.



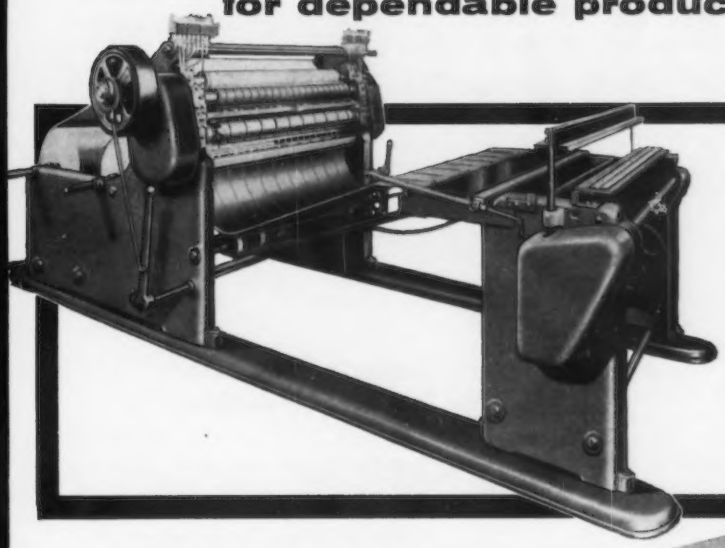
Leading converters of

NAPKINS · TOWELS · TISSUES

rely on these

HUDSON-SHARP "workhorses"

for dependable production capacity

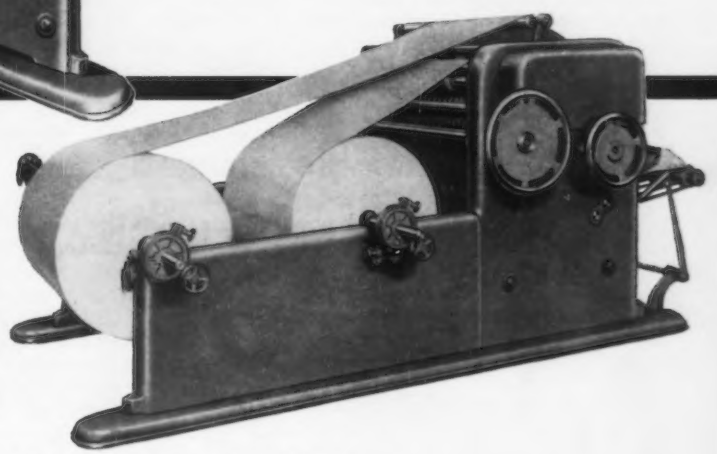


ROTARY TISSUE INTERFOLDER

Production of single or double-ply interfolded toilet tissues in single or multiple folds reaches unprecedented new highs with this modern Hudson Sharp machine. Sturdily constructed and completely rotary in operation it carries paper from parent rolls through feed rolls, into folding cylinders, and continuously delivers a product of exact sheet count to the packaging unit. Equipped with a semi-automatic banding unit, one operator easily handles the machine's entire output. Embossing units can be added if desired.

ROTARY TOWEL AND WAX INTERFOLDER

Designed to produce interfolded towels in any standard size, this machine produces from 10 to 12 cases, per towel width, per hour! Completely rotary in operation, all necessary adjustments are simple to make and easily accessible. Furnished in any widths up to 60" in all standard sizes and folds. Besides towels, this machine is practically adaptable for interfolding wax papers, glassines, butcher wraps, delicatessen papers and others. Write for complete information on any of these popular Hudson Sharp machines that are continuously increasing converting production throughout the industry.



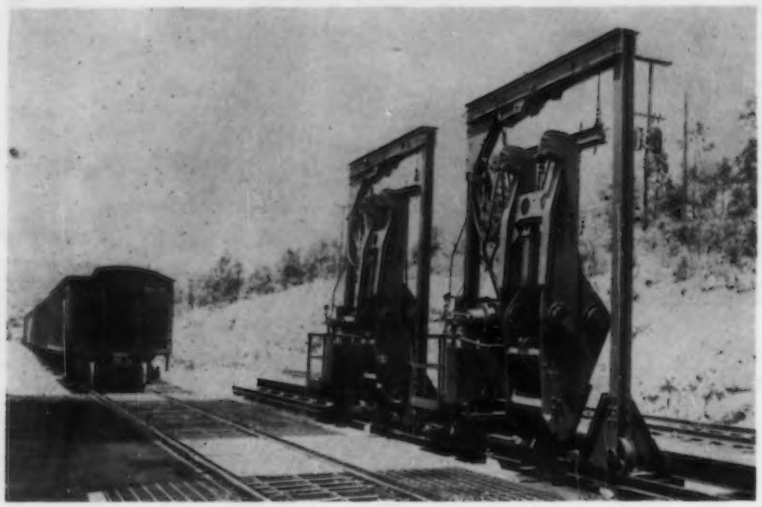
Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

FMC Packaging Machinery Division

Hudson-Sharp Machine Company

1201 MAIN STREET, GREEN BAY, WISCONSIN



Shaker Clamps on Car, is Quieter

A hydraulically-powered car shaker designed to unload hopper-bottom railroad cars with a minimum of noise is being manufactured by Stephens-Adamson Mfg. Co. The "Carquake" utilizes controlled vibration intensity with speed matched to required capacity. One man can control the entire operation from a hydraulic control panel. Personnel are free from danger of cave-ins or accidental fall through car bottom openings.

The "Carquake" is available in two models: the type "B" stationary mounted shaker and the type "C" rail mounted shaker. Both units are furnished complete, in that they require no additional structure, hoists or controls. The customer need furnish only footings and electrical wiring to the push-button line starter.

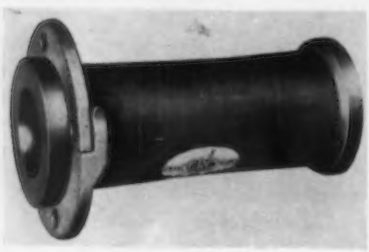
The type "B" is designed for applications where only slight movement parallel to hopper cars and track is required. The unit is mounted to the customer's concrete hopper foundation or steel structure with anchor bolts.

The type "C" has the entire unit mounted on rails and propelled by means of a hydraulic motor with speeds up to 50 f.p.m. It can travel any desired distance and unload at any point along its travel. Concrete piers or steel structure for anchoring the rails are all the customer need furnish.

A distinct advantage claimed for the "Carquake" is the clamping feature by which the shaker becomes an integral part of each car structure to which it is attached. Objectional noise from bouncing and hammering is eliminated. For full information write for Bulletin 658, Engineering Division, Stephens-Adamson Mfg. Co., Ridgeway Ave., Aurora, Ill.

Rubber Pipe Flexible, Flanged

General Rubber Corp., Tenafly, N. J., has introduced a line of flexible rubber pipe. The single piece, leakproof tube and multi-ply, wire-reinforced body are furnished with new integral flanges made of resilient rubber, smooth finished to form a tight, perfect seal against the pipe flanges. No gaskets are required. The patented "Gen-Lok" design allows a direct metal-to-metal bolting to the pipe, with the rubber flange of the pipe acting as its own gasket as it is compressed to form the tight seal. The split retaining rings, made of cast semi-steel for added strength, are designed for snug mating of the ring valves.



The "Gen-Lok" flanged flexible rubber pipe, called the Type G series, is now available in all standard diameters from 1-inch to 12-inch I.D. and in any standard "F-F" (face-to-face) length. The Type G flexible rubber pipe is available for maximum working pressures of either 150 or 250 p.s.i.g. It can also be used for vacuum service. Covers of "Gen-Lok" can be furnished to resist corrosion, oils, heat and sunlight.

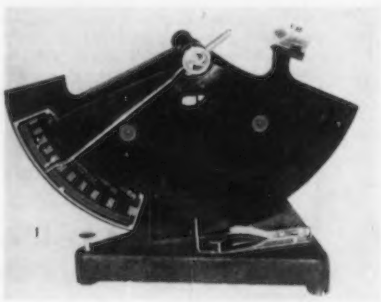
Hi-Speed Plastic-Paper Garment Bag Machine

H. G. Weber and Co., Inc., Kiel, Wis., recently demonstrated a machine capable of producing garment bags with a full plastic face and with a backing of paper at speeds of 180 to 200 combination units per minute. Bags of paper with a plastic strip of any width down the front, either on the centerline or offset left or right of the center, can also be produced by the machine. All-paper bags may be produced if it is so desired.

The combination paper and poly bag is claimed to overcome the objections to the all-poly bag and will still have the advantages of visibility and likewise the advantages of paper in that the paper background will present a much better surface for advertising and printing such as was the original case with all paper bags. What has impressed the people who have witnessed a demonstration, say the manufacturers, is the manner in the positive control that has been attained at high speeds for the type of bag involved.

Capacity of Tester Increased Fourfold

The capacity of the Elmendorf Tearing Tester has been increased to 6400 grams in the textile model, a capacity four times that of the standard model. The textile model is a three-range instrument with a basic range of 1600 grams. It can be used as a 3200-gram instrument by adding one augmenting weight to the pendulum. By adding two augmenting



STOPS WET-END BREAKS ANY PAPER ANY SPEED

Curtiss-Wright PERMAWEB*

The complete–automatic Fourdrinier system that detects and halts wet-end breaks–then restores the paper web to its full width... all within 8 to 15 seconds.

Curtiss-Wright PermaWeb is engineered to fit the requirements of any Fourdrinier machine. There are no limitations on the types of paper or the speeds at which they may be processed. PermaWeb offers full flexibility.

Have you seen PermaWeb in action? A special film, made at the first PermaWeb installation, is ready for viewing.

Call, wire or write George Butler, Manager, Industrial Controls Department, Electronics Division, Curtiss-Wright Corporation, 637 Central Avenue, Carlstadt, New Jersey and he will arrange a private showing at your mill.

The paper industry's leader in basis weight and moisture control systems

ELECTRONICS DIVISION
CURTISS-WRIGHT
CORPORATION • CARLSTADT, N. J.

*Patent applied for.

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as a solution in processing operations

Here's how you can:

cut storage space by 60%
eliminate dust
simplify and speed up handling
step up efficiency, save money

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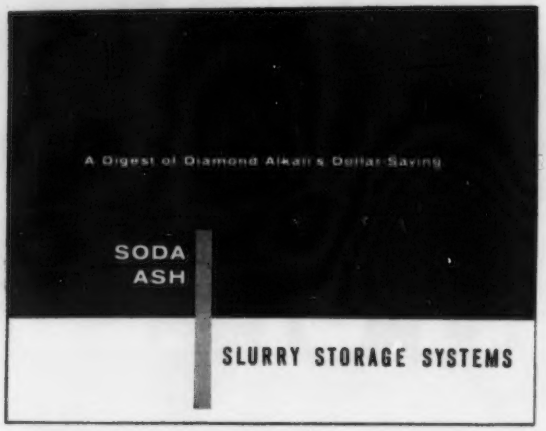

This 16-page book is loaded with facts, photos, and full-page diagrams showing the three alternate Diamond-developed slurry storage systems now used in many plants. The book is yours, FREE. Mail the coupon today.

For complete information or informed technical service, call your Diamond Representative or write Diamond Alkali Company, 300 Union Commerce Bldg., Cleveland 14, Ohio.

Diamond Chemicals

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Please send me the free book, "Soda Ash Slurry Storage Systems".

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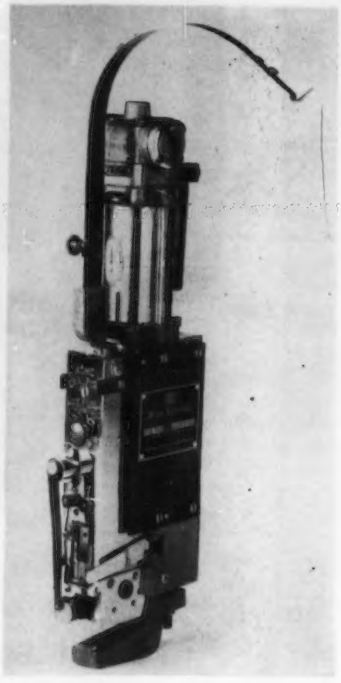
weights it can be used as a 6400-gram instrument. Because each range is calibrated separately the augmenting weight and textile weight can be slipped on or off without affecting the calibration of the instrument.

The tester is made by the Thwing-Albert Instrument Co. at Penn St. & Pulaski Ave., Philadelphia 44, Pa.

Wire Stitcher Unit Saves Material

Acme Steel Co., 135th St., Perry Ave., Chicago 27, Ill., announces an air-actuated wire stitcher designed



for assembling or packaging work, which is said to save from 65 to 80 per cent in fastener material.

Designated as the Model L Champion, the stitcher can be used in many types of automatic equipment or for manual stitching or tacking on a continuous or non-repeat basis. Size of wire it accommodates is from No. 27 to No. 25 round and 21 by 25 flat wire.

It may be mounted in multiple units to stitch one object with several stitches at one time, or grouped for various patterns of fastenings as required. It can be positioned to stitch downward or upward, horizontally or at any angle.

A quick release lever permits detaching of stitcher head from frame casting. The wire coil for each stitcher can be attached to the unit or wherever space may be available.

Courtesy: Republic Steel Kitchens

Alpha® Protein...

for faithful reproduction at reduced cost

When print is used to sell big-ticket merchandise where wife-saving features are a factor, those features must be portrayed with authenticity. See here how this kitchen scene reflects sturdy equipment, lustrous stainless steel drawer and door pulls, contoured edges, and a beautiful baked enamel finish.

Crisp detail is brought into sharp focus on Alpha Protein-processed paper. Its whiter, smoother and more uniform surface offers the best opportunity for faithful reproduction of fine detail.

Alpha Protein, a processed vegetable protein adhesive, is rigidly controlled at all stages of manufacture for absolute uniformity. It improves paper quality and lowers production costs. Write or call for complete information.

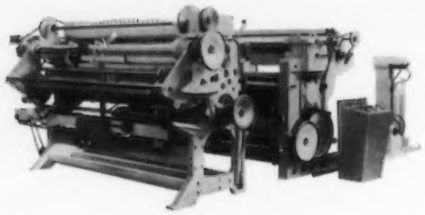
CENTRAL SOYA COMPANY, INC.

Chemurgy Division

1825 N. Laramie Avenue • Chicago 39, Illinois

This advertisement reproduced on Alpha Protein-processed paper

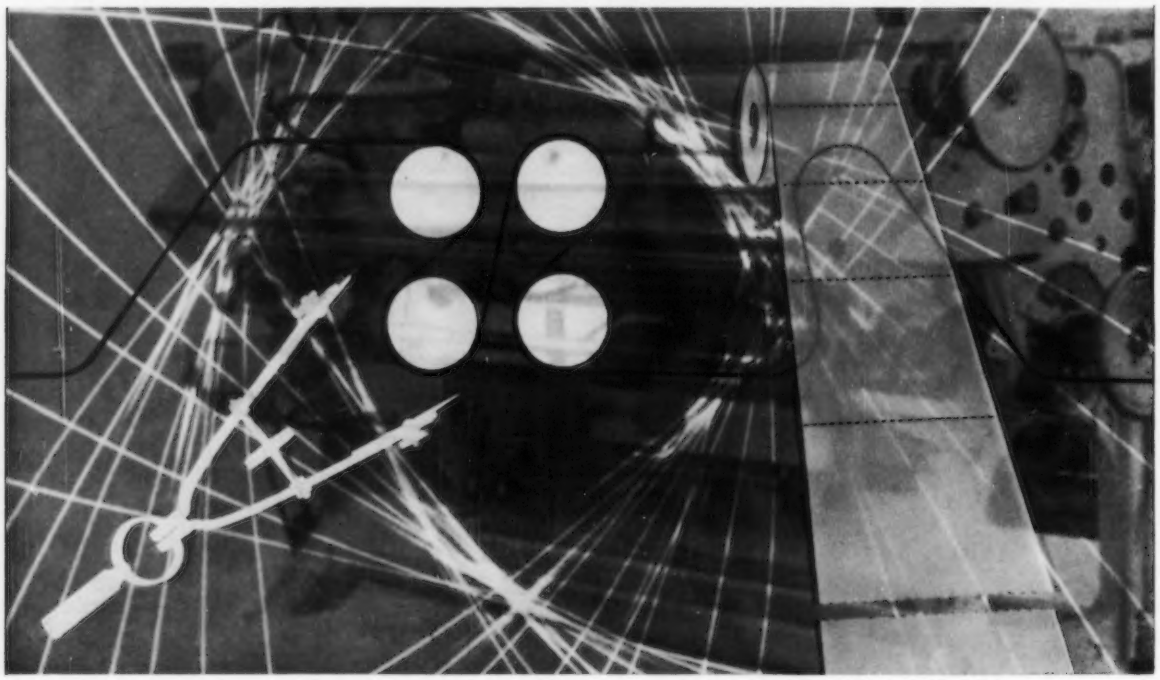
Creative engineering and development of converting machinery



New Rewinder — over 1,000 feet per minute, completely automatic! This new Model 2481 90″ Rewinder operates continuously at speeds over 1000 feet per minute, automatically transferring the web for each set of rolls while running at full speed. One operator easily operates two of these rewinders because the mandrels remain in the machine and the automatic core loader eliminates manual labor. It has Paper Converting's new Shear-Cut Perforator, micrometer adjustment for accurate control of nip pressure on embosser, 60″ diameter jumbo rolls with automatic constant tension dancer roll control. The ideas in this rewinder typify the *creative* engineering in all our converting machinery. Ideas that mean profit on your production line.

PAPER CONVERTING MACHINE COMPANY · GREEN BAY, WISCONSIN

Folders, Rewinders, Embossers, Napkin and Core Machines, Letterpress and Flexographic Presses, Special Converting Machinery



One in a series of interviews with the men who are "Virginia"

"Bleaching groundwood pulp with hydrosulfites can be done easily—with minimum capital investment—for less than $6 per pulp ton, including chemicals and steam for heating"

Robert Barton, a "Virginia" technical representative

Simplicity of operation, low cost, high pulp brightness—these factors have attracted many groundwood pulp processors to the use of either sodium or zinc hydrosulfite as their principal bleach agent.

The advantages of hydrosulfite bleaching are discussed by Robert Barton, a technical representative of Virginia Smelting Company.

Q How does the cost of bleaching with hydrosulfite compare with the cost of oxidizing bleaches?

A Extremely well. The cost of using zinc or sodium hydro usually runs less than one-half that of the oxidizing bleaches, and with equally good results.

Q Just what is the brightness gain using hydro?

A That question has to be qualified somewhat, I think. You see there are factors that have to be considered in bleaching groundwood pulp with hydro —the *p*H of the stock, temperature, reaction time, iron content of the pulp and of the process water. But with reasonably good conditions, single-stage bleaching with hydro will result in about 10 or 12 brightness points gained.

Q Does installation of equipment present any problem?

A Not at all. Most manufacturers who have gone to the hydro bleaching process are well pleased with the simplicity of the installation. And at the low cost, I might add. Generally they can use existing chests and pumps in their plants —adding necessary piping. Not much more is needed.

Q Do the hydrosulfites offer any advantages to a manufacturer now using peroxide for his bleach?

A Very definitely. In our laboratories at "Virginia" we have helped develop the 2-stage bleach for groundwood pulp that gives an absolute maximum brightness—at a cost that cannot be touched by any other method.

Q How does this 2-stage bleaching work?

A Well, for brightness gains up to 12 points, of course, the single-stage hydrosulfite bleach is the most economical. But for gains from 12 to 20 points, we recommend a 2-stage bleach. The first stage is a peroxide bleach. We follow that with a sulfur dioxide treatment to remove any residual peroxide in the slurry. This is followed by a hydro bleach. We will be happy to furnish all the data to anyone interested in this process.

Q Does "Virginia" offer technical assistance to any manufacturer interested in either the single-stage or 2-stage bleach process?

A A great deal. Our experience in this field is long and extensive, and available to anyone interested. For preliminary bleaching studies, we maintain a complete pulp laboratory at our plant. To solve certain types of problems, we obtain pulp samples, make laboratory bleaches, study the brightness gains along with any contributory factors, and make a complete report to the manufacturer. Along with the report go our recommendations—and of course our laboratory men are quite impartial in their findings. If the manufacturer has a process involving problems that make hydro impractical for any reason, we will tell him so quite frankly. But this occurs very infrequently. We welcome inquiries from any manufacturer interested in exploring the possibilities of hydrosulfites in pulp bleaching.

• • •

FOR MORE DATA ON HYDROSULFITES

write to us on your company letterhead describing your present bleaching process, giving full details wherever necessary. We will send you pertinent technical bulletins from the extensive "Virginia" library of literature on pulp bleaching. If you prefer, we will have a "Virginia" man call on you.

Industrial Division
VIRGINIA SMELTING COMPANY
Dept. 215, West Norfolk, Va.

VIRGINIA® Chemicals

Field Offices: New York • Boston • Memphis • Chicago
Atlanta • Asheville • Philadelphia • Akron • Seattle

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PJT NEW LITERATURE

Polymer Product Directory

Contains eight pages on its various polymer products and their specific properties as well as uses. Also lists the Borden sales offices and plants which produce these products. Borden Chemical Co., Polyco-Monomer Dept., 350 Madison Ave., New York 17, N. Y.

Prescription for Color Blind Light Sources

Using a cartoon technique this bulletin discusses the problems facing industry in its efforts to provide proper illumination for color matching, color grading, color shading, etc. Macbeth Daylighting Corp., P. O. Box 950, Newburgh, N. Y.

Water, Sewage and Industrial Waste Treatment Equipment

Presents Link-Belt's complete sanitary engineering equipment line. Also shows flow diagrams of how this equipment can be installed in typical plants. Book 2617. Link-Belt Co., Dept. PR, Prudential Plaza, Chicago 1, Ill.

Analog to Digital Recorder

Describes shaft-input device that converts and records analog values in digital binary-decimal punched tape form, and at the same time provides digital values in electrical form for telemetering, or any other purpose desired. Catalog 35-1541. Fischer & Porter Co., 151 Jacksonville Rd., Hatboro, Pa.

Joy Precision-Built WL-80 Unitair

Includes specifications on eight sizes of air-cooled compressors in the 15 to 125 h.p.; 81 to 641 c.f.m. range. Also provides cross sectional drawings and a complete run-down on all vital components. Bulletin A-56. Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Pa.

Inductrol Voltage Regulators

Gives application, description, selection, weights, dimensions, and connection diagrams on the redesign of dry type and liquid filled Inductrol voltage regulators. Catalog GEC 1450A. General Electric Co., Pittsfield, Mass.

Quality Control and Research

This is a new reference manual for technical and purchasing executives. It is comprised of 87 different broad categories of physical testing areas, and 83 similar broad categories. Testing Machines, Inc., 72 Jericho Turnpike, Mineola, L. I., N. Y.

Pipe-Pal Valves

Covers a new line of gate valves designed specifically for ductile iron. This line introduces an innovation described as "the spread flange design" which features a high visibility bonnet joint and extra long bolts for storage of bolting energy. Form 1010. Ohio Inject Co., Wadsworth, Ohio.

Raymond Reach-Fork Trucks

Describes and illustrates a heavy duty electric truck designed for narrow aisle operations. Shows actual on-the-job pictures of the truck in action and gives special pictorial attention to features of the new unit. Bulletin 620. Raymond Corp., 191-176 Madison St., Greene, N. Y.

Research and Development Facilities

Covers their modern research and development facilities for engineers and scientists designed, built and equipped by them. 24 p Brochure. H. K. Ferguson Co., Cleveland 14, Ohio.

Transistorized Flow Rate Indicator

Lists design features, performance data, full dimensions and mountings of this indicator for F&P magnetic flowmeters. Technical Flyer 51-1321B-1. Fischer & Porter Co., 153 Jacksonville Rd., Hatboro, Pa.

Rockwell-Nordstrum Special Coated Valves

Includes tables of recommended applications, illustrations of typical installations, descriptions of the coating properties, and valves available. Bulletin V-614. Rockwell Mfg. Co., Meter & Valve Div., 400 N. Lexington Ave., Pittsburgh 8, Pa.

Top Performers

Describes the main features of three motor graders, models number 14, 12 and 112. Booklet DE914. Advertising Div., Caterpillar Tractor Co., Peoria, Ill.

Case History Bulletin

Compares performance of magnetic and variable area flowmeters in automatic proportioning system. Bulletin 90-130-27. Fischer 7 Porter Co., 224 Jacksonville Rd., Hatboro, Pa.

Embeco Pre-Mixed Mortar

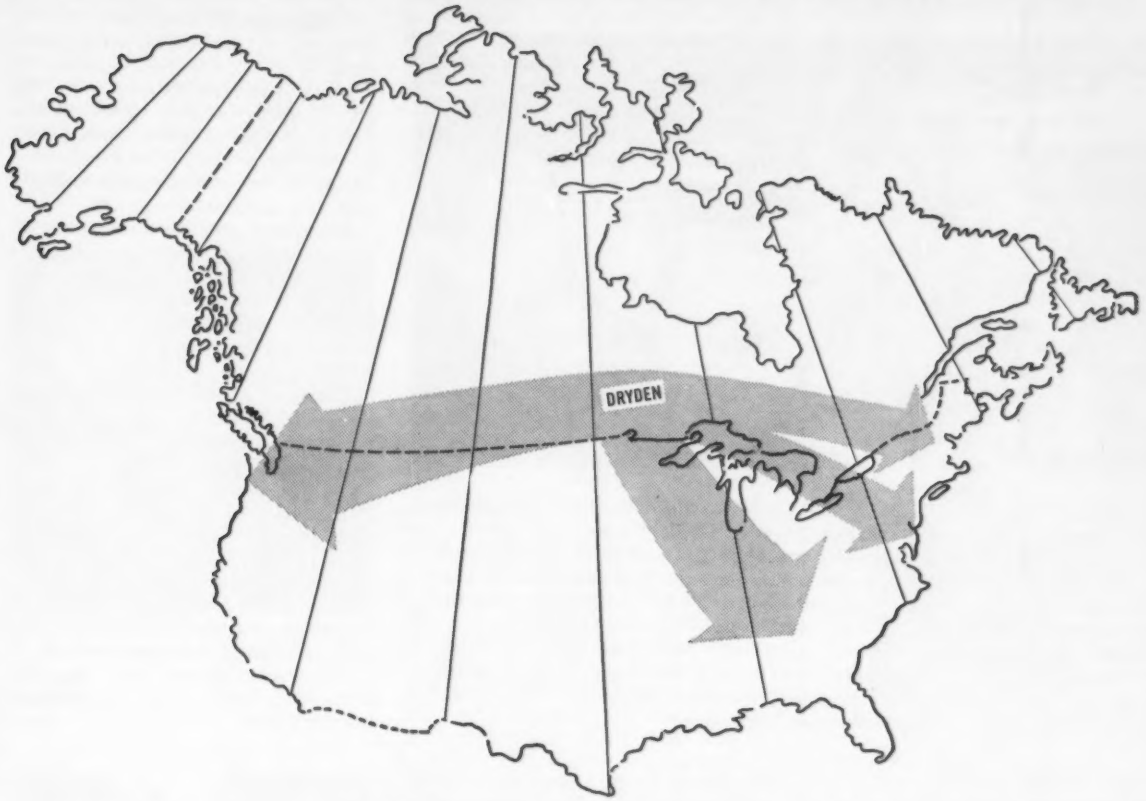
Covers seven step procedure for repairing damaged floors, with complete explanations and photos of each step in the operation. Bulletin EPMM-4. Master Builders Co., Cleveland 3, Ohio.

Recommended Arc Welding Procedures

Summarizes the various recommendations for arc welding, and in addition to indicating proper type of electrodes to be used, it provides information on suggested pre-heat and post-heat treatments. Data Card 155B. Tubular Products Div., Babcock & Wilcox Co., Beaver Falls, Pa.

opened June 1, at 165 Broadway,

DRYDEN'S LOCATION ASSURES FAST DELIVERY



Dryden has long been known for its efficient Traffic Department...always ready to ship on a few hours' notice. And the shipments get to our customers in record time, because of Dryden's strategic location and proximity to major rail, highway and water routes.

A glance at the map makes it obvious why Dryden can and does make 4-6 day deliveries to the Midwest. But did you know that we also can give the same kind of service to our customers in Eastern United States and Canada? Dryden maintains inventories in boxcars, ready to go at a moment's notice.

Ask your laboratory to compare Dryden Bleached Sulphate with the best quality pulp you know. You, too, will say that it deserves all the endorsements—*and production testimonials*—it now enjoys. Order a trial shipment today. You will be amazed at how quickly you receive it.

DRYDEN PAPER COMPANY, LIMITED

DRYDEN, ONTARIO, CANADA

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67 Yonge Street, Toronto 1, Ontario

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Northeastern Paper Sales, Inc.

400 Madison Avenue, New York 17, N. Y.
20 North Wacker Drive, Chicago 6, Ill.

Bolas. Mr. Smith, who joined Staley's

Atlas Copco A. B. of Stockholm

NEWS OF SUPPLIERS

HUYCK PRESENTS FELTS to North Carolina State College. James Clark, Southeastern sales representative, Huyck Felt Co., Rensselaer, N. Y., and Aliceville, Ala., (right), presenting one of two sets of felts donated recently by his company to North Carolina State College. The felts will be used to cloth an experimental paper machine operated by student papermakers in the college's Department of Pulp and Paper Technology. Members of the college staff, appearing left to right, with Mr. Clark are: C. E. Libby, Professor and Head of the Department of Pulp and Paper Technology; H. D. Cook, Assistant Professor of Pulp and Paper Technology and R. G. Hitchings, Assistant Professor of Pulp and Paper Technology.

Dorr-Oliver, Inc., announces the retirement of Arthur Terry, Jr., as vice president for international administration and as a director of the company. Closely associated with D-O international business affairs for most of his 38 years of service, Mr. Terry will continue to serve Dorr-Oliver after his retirement as a consultant in the international field. Vice President Douglas C. Reybold, former director of technical operations, has assumed guidance of all international operations.

Mr. Terry joined Dorr-Oliver in 1920 upon graduation from Princeton University. His service with the company included responsibility for establishing several D-O European subsidiaries and coordination of the work of all during the 1930's as general European manager. Named controller of the parent company at the outbreak of World War II in Europe, he was elected to the D-O board of directors in 1942 and was named vice president in 1944. During the latter war years he served the Foreign Economic Administration of the State Department as Assistant Special Representative to The Netherlands.

After the war, under his direction the Dorr-Oliver subsidiaries in Europe were reestablished and Belgian, Indian and Australian subsidiaries added to the international organization.

Organic Chemicals Division, Dewey and Almy Chemical Division, W. R. Grace & Co., Cambridge, Mass., announces the appointment of William M. Burr, Jr., of Hudson Village, Ohio, as organic chemicals sales representative for Ohio.

Mr. Burr was formerly with C. K. Williams & Co. He received a B.S. in Marketing in 1952 from the University of Missouri.

The Annin Co., Los Angeles, manufacturer of industrial control valves, has expanded its sales and service organization with the opening of new eastern sales offices in New York City and Jacksonville, Fla.

Robert J. Fyffe has been appointed manager of the New York office, opened June 1, at 165 Broadway, New York 6, N. Y.

The Mason-Neilan Regulator Co. is the new Annin valve representative for Eastern Florida, with offices located at 637 Park St., Jacksonville 4, Fla. Sales engineers are M. D. Duncan and A. E. Bennett.

Chemipulp Process Inc., Watertown, N. Y., announces the appointment of A. E. Theisen as president to succeed the late Albert D. Merrill. Mr. Theisen was also appointed secretary of the company. Jack Grant is the vice president and treasurer and B. E. Gruntorad assistant treasurer and assistant secretary.

Mr. Grant continues as president and treasurer of Chemipulp Process Ltd., Kingston, Ontario, and Mr. Theisen retains the position of vice-president and secretary of the Canadian affiliate.

Diamond Alkali Co. has appointed Robert B. Turk to the staff of its Pulp and Paper Technical Service Laboratory. At his new post Mr. Turk will supervise laboratory projects and technical service assignments for Diamond customers.

Mr. Turk joins the Diamond organization from Hammermill Paper Co., Erie, Pa., where he served as technical coordinator during its recent expansion. A graduate of Grove City College, Grove City, Pa., Mr. Turk holds a B.S. degree in chemical engineering.

J. P. Bolas

J. W. Lusk, Jr.

A. E. Staley Manufacturing Co.'s industrial sales organization has announced three appointments, effective June 15.

John P. Bolas becomes assistant manager in Staley's Philadelphia branch office, promoted from senior sales representative in the Chicago branch office. Mr. Bolas joined Staley's industrial sales organization in 1953 after graduating from Millikin University in Decatur.

Robert E. Smith becomes sales representative in the Chicago area, transferred from the company's Boston branch office to succeed Mr.

Bolas. Mr. Smith, who joined Staley's in 1957 after graduation from Holy Cross University, has been a sales representative at the Boston office since.

John W. Lusk, Jr., takes on new territorial responsibilities in the Boston office, moving from his industrial sales assignment in Philadelphia. Mr. Lusk joined the company's management training program in 1953, and held various positions in Staley's refined oil sales department both in Decatur and Philadelphia before his industrial sales assignment there last year. He attended Quincy College and graduated from the University of Illinois.

Farrel-Birmingham Co., Inc. Franklin Farrel, 3rd, president, is shown receiving his 25-year company service pin from his father (left). Franklin Farrel, Jr., who himself was an executive of the firm for 41 years prior to his retirement as chairman of the board in 1945. Furthering this lineage continuity is the fact that Franklin Farrel, Jr.'s father, Franklin Farrel, was president of the heavy machinery manufacturing concern from 1869 to 1912, and he was, as a youth, co-founder of the company, in 1948, with his father Almon Farrel.

In all, twenty-two 25-year membership pins were presented at the recent 23rd annual spring party of the "F-B Old Timers Club," which brought active employee membership to 222 in Farrel's Connecticut plants at Ansonia and Derby. The company's two New York state plants at Buffalo and Rochester have independent service clubs.

S. P. Kinney Engineers, Inc., Carnegie, Pa., has announced two promotions.

J. D. Morrow has been appointed vice president and treasurer; and H. B. Carr, vice president—engineering.

Atlas Copco A. B. of Stockholm, manufacturer of air compressors and pneumatic equipment, has announced that it will appoint Jack E. Heuser president of their two companies in the United States.

As president of both companies—Atlas Copco Pacific, Inc., and Atlas Copco Eastern, Inc.—Mr. Heuser will be responsible for co-ordinating Atlas Copco operations in the U. S.

Atlas Copco Pacific was organized in San Francisco in 1951 to serve interests in the western part of the country. Now headquartered in San Carlos, Cal., it operates district offices in Spokane, Seattle, Salt Lake City, Phoenix and Denver.

Atlas Copco Eastern was established in 1952 to serve firms in the eastern part of the United States. Headquartered in Paramus, N. J., district offices are located in Duluth, St. Louis and Knoxville.

Allis-Chalmers Manufacturing Co. has named four sales representatives to its Industries Group district offices in the South.

They are: James M. Baldwin, Charlotte, N. C.; Granville M. Grant, Richmond, Va.; G. Holman King, Abilene, Tex., and Lawrence E. Walker, New Orleans.

Messrs. Baldwin, Grant and Walker are industrial engineering graduates of Ohio State University; Virginia Polytechnic Institute, and University of Florida, respectively. Mr. King received his electrical engineering degree from Texas A & M.

Newly named sales representatives to the New York district are Joseph F. Maloney and David W. Vannatta.

Announcement is also made of the appointment of Robert Hanlon as a sales representative in the Cleveland district.

Mr. Hanlon and Mr. Vannatta are mechanical engineering graduates of Fenn University and Princeton University, respectively. Mr. Maloney is

CHAS. T. MAIN, INC.
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PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION
PULP AND PAPER MILLS
STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS
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More clean water at a lower cost with
S.P. KINNEY AUTOMATIC SELF-CLEANING
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... for efficient removal and disposal of suspended particles from raw or process water and other liquids

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CARNEGIE, PENNSYLVANIA

Three APMEWS Replaced a Big Room Full of Flat Screens in Bond Paper Mill

"Apmew centrifugal pulp cleaners & screens have now been installed and are working very satisfactorily." Centrifugally cleaner, more salable paper is being produced for big profits.

Occupy 10 feet by 30 feet—SAVE 81 feet by 96 feet

APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.

an industrial management graduate of Alabama Polytechnic Institute. All recently completed Allis-Chalmers training course for graduate engineers.

Smith & Winchester Co., South Windham, Conn., has announced the appointment of Farhang Javid as vice president of sales and engineering. The company is expanding its sales and service to the paper industry and incorporating the latest technology into the line of paper and bag machinery it has manufactured since 1828.

Before joining Smith & Winchester, Mr. Javid spent nine years with Black Clawson Co. including one year with Parsons & Whittemore of France. Earlier he was associated with Allis-Chalmers Manufacturing Co., West Allis, Wis.

He is a 1947 graduate of the University of Illinois with a Master of Science Degree in mechanical engineering.

Farhang Javid

D. B. Smith

Clupak, Inc., announces that Dudley B. Smith, formerly patent and trademark counsel for Cluett, Peabody & Co., Inc., has joined the company in an executive capacity.

In his new position, Mr. Smith will specialize in activities connected with the licensing of foreign paper manufacturers to make Clupak extensible paper and to use the Clupak trademark.

Oakite Products, Inc., manufacturers of specialized chemical compounds for industry, announces two transfers and two new appointments in its technical field service organization.

Ben P. Fortin, a veteran of almost 20 years service formerly assigned to Tyler, Tex., has joined the Oakite staff in Los Angeles, where he will serve the metal industries. His post in Tyler has been filled by Henry L. Jones.

J. G. "Jerry" Hickey has been transferred from San Francisco, where he has served since 1954, to Sacramento, Cal.

Wayland E. White has been appointed to the Corpus Christi territory. Both Mr. Jones and Mr. White came to Oakite with considerable experience in cleaning service. Before undertaking their new assignments, they completed an intensive eight-week training course at the company's New York laboratories and in the field.

Frank W. Egan & Co., Somerville, N. J., manufacturer of paper converting and plastics processing machinery, has announced plans for further expansion of the firm's manufacturing facilities.

Edward F. Egan, president, said his company has leased 16,000 square feet of floor space at the former Somerville Iron Works to augment existing facilities. The Iron Works building will provide much-needed space for new machine tools and assembly areas. Approximately 20 men will be assigned to the new location.

The rental transaction was described as "an interim move to permit further expansion of our main plant at Adamsville Road." The Egan building was completed in 1955 and in 1957 a 16,000-square-foot addition was constructed to enlarge manufacturing and general office space. Plans for the second addition are now on the drawing board.

Solvay Process Division, Allied Chemical Corp., has announced the appointment of Herbert Kishbaugh to position of manager, New York sales branch, effective July 1, 1959. Mr. Kishbaugh succeeds Fred H. Harris who is retiring after 34 years as a member of the Solvay sales organization.

Mr. Kishbaugh, a native of Pennsylvania, is a graduate of the University of Tennessee. First employed in Solvay's advertising department in 1948, he was transferred to the Boston branch as a salesman in 1949. Six years later he was assigned to the New York branch office and on June 1, 1958, he was appointed assistant manager of that branch.

John W. Bolton & Sons, Inc., Lawrence, Mass., announces the formation of the machine knife division to handle the expanded requirements of the company's machine knife activities as a result of increased sales and added production capacity for the manufacture of machine knives.

Arthur G. Schwarzenberg has been elevated to manager of the new machine knife division reporting to B. E. Prevost, vice president—operations. Mr. Schwarzenberg joined the company in 1936 and enters upon his new duties with experience gained in several administrative capacities with the Bolton company and its Emerson Manufacturing Co. division. He has served as manager of the Emerson division, assistant to the sales manager, and manager of customer services.

In addition, outside field sales of the newly created machine knife division will be under the supervision of C. E. Scollard who has been appointed to the position of sales manager for machine knives. Mr. Scollard joined the Bolton company in 1952, and has previously served as field salesman in the metropolitan New York area.

The Bolton company manufactures a complete line of machine knives under the trade names Boltoloy Paper Knives, Blue Devil Chipper Knives, and others for the pulp and paper industry, graphic arts, plastics, woodworking and metal cutting.

A. Schwarzenburg

Virginio Zani

The Black-Clawson Co., New York City has established Black-Clawson Italia to handle its business in the Republic of Italy more efficiently.

Black-Clawson Italia, an Italian corporation, is located at Via Meraviglia 7 in Milano and is under the management of Virginio Zani. Dr. Zani is a chemical engineer with wide experience in the pulp and paper industry throughout Italy and South America. For several years he was associated with the W. R. Grace Corp. in Peru, working on the pulping of sugar cane bagasse for papermaking.

The equipment sold by Black-Clawson Italia will include pulp mill equipment, stock preparation units, paper and board machines, and paper and plastics converting machinery, produced in either the Black-Clawson International works in England or the four plants of Black-Clawson in the United States. In addition, small Hydrafiners, jordans and Hydrapulpers can be manufactured under license in Italy for the Italian mills by Figli di Carcano Gerolamo in Masilianico.

Prices of Fibers

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	§390.00/ —	§350.00/ —	§390.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED JULY 1

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$ — /6.75	7.50/7.25
3	$7.00/6.00	$7.50/7.00	6.25/5.75	7.00/6.75
4	6.00/5.25	6.25/5.75	5.50/5.00	6.50/6.25
5	5.25/4.75	5.25/4.75	4.75/4.50	5.75/5.25
6	4.75/3.50	4.50/4.25	4.00/3.75	4.25/3.75
7	3.50/2.50	4.00/3.00	3.25/2.75	3.00/2.75

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	July 6	July 6	July 6	July 6
No. 1 Mixed Paper	$ 10.00/ 12.00	12.00/ 14.00	9.00/ —	14.00/ —
No. 1 News	14.00/ 15.00	15.00/ —	18.00/ —	18.00/ —
Overissue News (Lg. size)	13.00/ 15.00	12.00/ 14.00	23.00/ —	20.00/ —
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	23.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	35.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	37.50/ —	37.50/ —	35.00/ —
(Semi-chem. medium)	47.50/ 50.00	45.00/ 50.00	45.00/ —	36.00/ —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	60.00/ 65.00	48.50/ 55.00	45.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	55.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	105.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	55.00/ 57.50	55.00/ 57.50	55.00/ —	40.00/ —
Manila Tab. Cards	77.50/ 80.00	77.50/ 80.00	75.00/ —	65.00/ 70.00
No. 1 Col. Ledger	40.00/ 45.00	37.50/ 42.50	50.00/ —	35.00/ —
White Ledger	60.00/ 62.50	60.00/ 65.00	60.00/ —	55.00/ —
Mixed Book & Mag.†	25.00/ 28.00	— / —	20.00/ —	— / —
No. 1 Books‡	30.00/ 32.50	24.00/ 26.00	40.00/ —	17.00/ 24.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

always in the market

baltimore
chicago
detroit
jersey city
kalamazoo
los angeles
oakland
philadelphia

PIONEER PAPER STOCK COMPANY

graders and packers of waste paper

NORTON ABRASIVES

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GRINDING WHEELS
GRINDING MACHINES
REFRACTORIES
ELECTRO-CHEMICALS
NON-SLIP TILES & AGGREGATES

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REDUCE LABOR!

Add to your

PROFITS

with .. **HAMBLET'S**

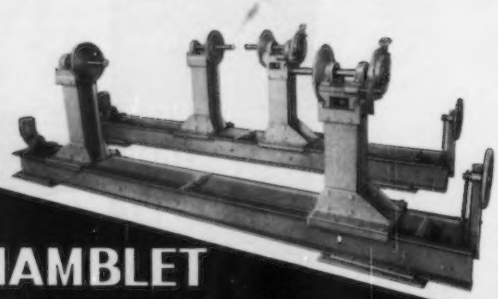
SHAFTLESS BACKSTANDS

$ Eliminate make-ready, shafts and chucks

$ Push-button loading

$ Lower maintenance through simplification

$ Better web alignment and production



HAMBLET

MACHINE COMPANY • LAWRENCE, MASS.

The right rotary joint for every need!

. . . ON PAPER MACHINE DRYERS
. . . CORRUGATORS
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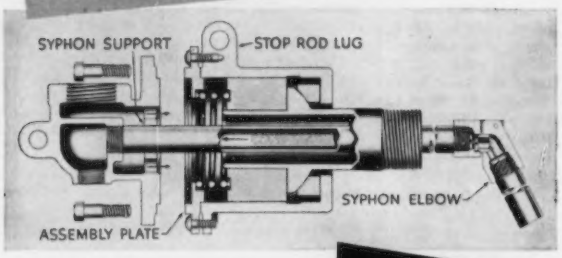
. . . ROOFING MACHINES
. . . WAXERS
. . . EMBOSSERS
. . . PRINTING PRESSES



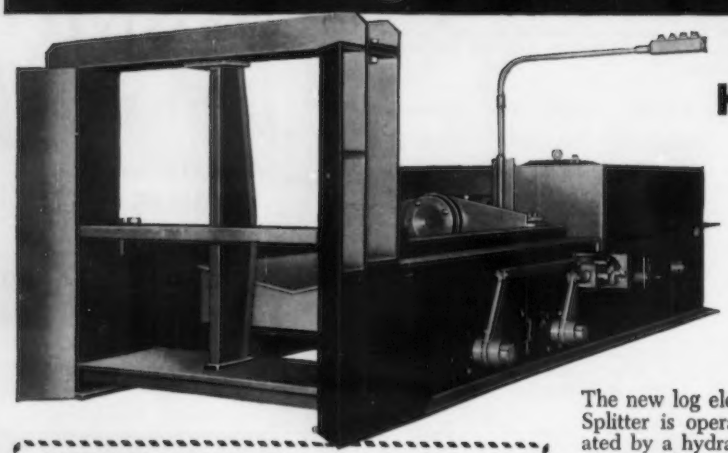
Type "SBP" shown is completely self-supporting. Like all Johnson Joints it has no packing, needs no lubrication or adjustment. The syphon elbow replaces unwieldy curved condensate drainage pipes with two straight pipes, hinges to pass right through the joint. Write for Bulletin S-3002. Johnson Rotary Pressure Joints are available for all operating speeds, pressures, mountings.

Johnson ROTARY PRESSURE Joints First in the Paper Industry

THE JOHNSON CORPORATION

828 Wood St., Three Rivers, Michigan

NEW! Log Elevator Mechanism



Makes the Carthage Hydraulic Log Splitter

EVEN EASIER to INSTALL

•

EVEN EASIER to SERVICE

The new log elevator of the Carthage Hydraulic Log Splitter is operated through a series of levers actuated by a hydraulic cylinder mounted on the outside of the splitter frame. No pit is required, so that the Splitter is easy to install and easy to move from location to location. Can be placed on cross timbers – no bolting-down needed. Cylinder rings and packing are quickly accessible for low-cost maintenance. ONE STROKE splits logs into four pieces (6-way axe also available). Fast, safe, trouble-free push-button operation. 30" and 38" log diam. splitters available. Service-proved since 1950.

CARTHAGE MACHINE CO.

CARTHAGE, N. Y.

CARTHAGE MACHINE CO.
CARTHAGE, N. Y.
Send information on the Carthage Hydraulic Log Splitter, including the new log-elevator mechanism.

Name .....
Firm .....
St. or Rd. .....
City ..... Zone .... State .....

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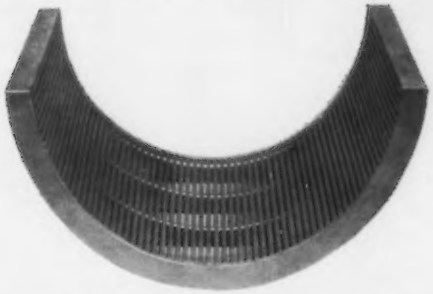
REDUCE BLINDING

raise paper and pulp production



Hendrick Wedge Slot is made with small openings to assure fine screening. Yet, the special Wedge Slot construction affords far greater draining and screening capacity than many other types.

Here's another big plus: Wedge Slot's profile bars are "precision shaped" to maintain uniform width of slot openings the entire length of the screen as wear progresses.

To find out more about these special features of Hendrick Wedge Slot, write today.

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MANUFACTURING COMPANY
77 Dundaff Street, Carbondale, Pa.

Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Hendrick Wedge Wire Screens • Architectural Grilles • Mitco Open Steel Flooring—Shur-Site Treads • Armorgrids • Hydro Dehazers • Distillation Column Internals.

CLEAN PAPER

is impossible with old, worn Screen Plates. Change to new, fine-cut "Fitchburg" Screen Plates and be amazed at the instant improvement in QUALITY.

"FITCHBURG" *New Type—Duplex Slot*
FLAT PLATES
Stainless Steel and Rolled Bronze

Plain or Chromium Plated
BIRD SCREEN PLATES
JONES SCREEN PLATES

FITCHBURG
Screen Plate Co., Inc.
301 South Street
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Wherever paper is made

GUARTEC

is making it better!

GENERAL MILLS' guar gum, GUARTEC, gives ***kraft liner board*** greater mullen strength—helps it take the rugged handling and abuse it's designed for.

And because you can use long-fibered, fast-draining pulp when you employ GUARTEC—you can get faster machine speeds, less refining—better economy. For the complete GUARTEC story, simply contact us and a GUARTEC Paper Industry Specialist will call on you at your convenience.

SPECIAL COMMODITIES DIVISION General Mills
MINNEAPOLIS 26, MINNESOTA

WOOD'S DUCTILE IRON PULLEYS INCREASE SCOTT'S MACHINE DRIVE SPEED POTENTIAL 50%

Split taper-cone pulleys of ductile iron, designed and manufactured by Wood's, have solved for Scott Paper Company the age-old problem of how to speed up flat belt drives. These new pulleys operate at rim speeds up to 9000 fpm (calculated allowable speeds up to 14,000 fpm), a 50% increase in speed over previously used, cast iron types. Pulleys are but one of the many, money-saving applications of this remarkable metal. Look into its advantages.

WRITE FOR YOUR COPIES OF "DUCTILE IRON" AND "A CASE FOR DUCTILE IRON ECONOMY."

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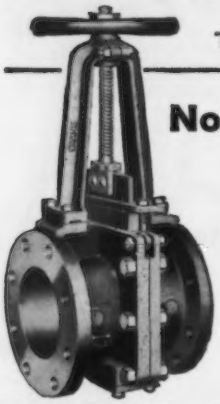

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In All Patterns and Sizes

Order from Your Local Crane Branch or Crane Wholesaler

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CORES CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

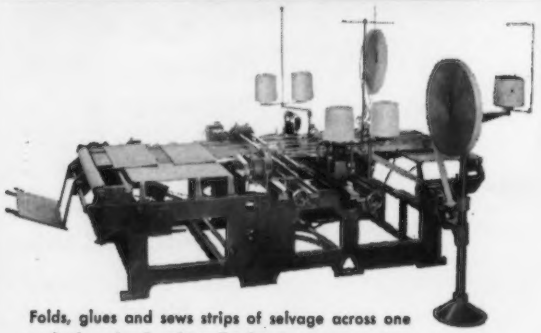
ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.

New! single or double-end

SEWING MACHINES

with New "tape-over" sewing feature

HI SPEED



Folds, glues and sews strips of selvage across one or both ends of multi-wall tubes in one operation. Equipped to do "tape-over" sewing (selvage pasted over stitches rather than stitches going through the selvage). Can also do regular sewing (through selvage).

Write for details

ESTABLISHED IN 1893 POTDEVIN

POTDEVIN MACHINE CO.

223 North St.
Teterboro, N.J.

Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling.

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$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.

PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES

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GRADUATE CHEMIST, CHEMICAL ENGINEER, OR PAPER SCHOOL GRADUATE FOR DEVELOPMENT WORK IN TECHNICAL DEPARTMENT OF INTEGRATED MIDWESTERN PAPERBOARD OPERATION. 2 TO 3 YEARS EXPERIENCE IN PAPERBOARD OR RELATED INDUSTRIES REQUIRED, PREFERABLY IN COATINGS. EXCELLENT WORK SITUATION AND ADVANCEMENT OPPORTUNITIES. SALARY OPEN. SUBMIT DETAILED RESUME TO PERSONNEL DIRECTOR, THE OHIO BOXBOARD COMPANY, RITTMAN, OHIO

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WE NEED EXECUTIVES

FLORIDA'S LARGEST WHOLESALE PAPER DISTRIBUTORS

Second largest fully integrated paper company in the world, has financial strength, stability and is constantly expanding.

We need Top Management, ability and experience, in wholesale paper applicable to the following areas:

PROCUREMENT	(Write Box 59-205)
SALES PROMOTION	(Write Box 59-206)
MARKET ANALYSIS	(Write Box 59-207)
BRANCH OPERATIONS	(Write Box 59-208)

If organizing coordinating your own department is appealing and you prefer working with a dynamic young management group in a growing firm, why not investigate, address reply to box number above, care Paper Trade Journal.

Please send resume of background and experience with recent photo. Remember, you will assume full responsibility for your department and must know the wholesale paper business.

J-13

WANTED

Machine Tenders and Back Tenders

for combined Fourdrinier Pick Up Machine with Pre-Driers and Yankee Attachment.

Machine is a Beloit Unit producing light weight paper at high speeds

Experience at operating such machine with Pick Up or Straight essential

Excellent salary and living conditions on contract basis for qualified personnel

Contact:

AMERICAN ISRAELI PAPER MILLS LTD.

P.O.B. 142 Hadera, Israel

J-13

Help Wanted

STAFF ENGINEER

Engineering - construction company active in design and construction of pulp and paper mills, seeks a qualified engineer to add to its Pulp & Paper Staff Engineering group. Duties involve providing technical advice to engineering department and working with customers on mill design. Permanent position in home office.

Applicant should be graduate engineer, preferably in chemical or mechanical engineering, with 10 years experience in pulp and paper field.

Please send resume of experience to:

Buell Whitehill, Jr.
Director of Personnel

The Rust Engineering Co.
930 Fort Duquesne Boulevard
Pittsburgh 22, Pennsylvania

PULP AND PAPER MEN

International paper manufacturer requires experienced pulp and paper makers for overseas assignments to train foreign nationals. 3 year contract with possibility of permanent management position.

Location: company administered town 125 miles north of Lima, Peru. Qualifications: 10 years experience in all aspects of pulp or paper production.

Attractive salary and company benefits including free housing. Family men preferred.

Write Box 59-204
care Paper Trade Journal

J-13

OPPORTUNITY IN TECHNICAL SERVICE TO MANUFACTURING

WANTED—Technically trained man with experience in supervising the work of Project Engineers and ability to deal with technical problems in paper manufacturing.

Experience in fine papers desirable.

Send resume to

Personnel Dept.
P. H. Glatfelter Co.,
Spring Grove, Pa.
Phone:—Spring Grove—3216 J-13

PAPER CHEMIST

We have an opening in our Research Laboratories for a young man interested in paper and paper coating. Some experience helpful but not necessary. We are located in the Adirondack region of New York State where living conditions and natural recreational facilities are ideal. Send resume in confidence to: P. T. Scull, Personnel Department, Imperial Color Chemical and Paper Corp., Glens Falls, New York. J-13

— SALES ENGINEER —

For Progressive, Growing Paper Mill Machinery Manufacturer

The man we want as our REPRESENTATIVE is now with a paper mill machinery firm. He is in sales or he is doing field engineering contact work. He has engineering experience. He likes customer contact work. He is ambitious, young and he feels stymied in his present job because other young and competent men are ahead of him. In short, he wants to move—ahead, fast!

If you are this man, if you have a good background in the pulp and paper industry and if, above all, you don't mind hard work when the future looks promising, then contact PATTON MANUFACTURING CO.

We are looking for a man who has a minimum of five years of experience in our industry, a man who knows how to sell a company as well as a product; a man who will do so with conviction and enthusiasm because he feels a part of our dynamic, growing company.

Be prepared to work hard if you reply to this ad. This job is no picnic! It entails hard work, often with long hours—but future rewards will prove extremely gratifying. Patton's growth potential has been shown in the past. It has been built on extremely high standards. It also permits us to make this statement with confidence: Monetary considerations will prove to be no problem when the RIGHT man replies to this ad.

Let's summarize: "Order-takers" are a dime a dozen. We don't want any! If you are an experienced sales engineer in the paper mill machinery field and if you too have extremely high standards, then reply in confidence to

PATTON MANUFACTURING COMPANY, INC.

1803 West Pleasant Street, Springfield, Ohio

J-13

CHEMICAL ENGINEER

Graduate Chemical Engineer for new engineering and development work. Job will require some travel to operating units in North America. Will be located in Southeastern U. S. A.

Applicant must have experience in sulphite pulp process. Experience in recovery of by-products in sulphate and sulphite processes desirable. Age up to 40 years. Good salary and advancement opportunities. Organization has no chemical engineers and is now entering chemical manufacturing field. Our employees know of this ad. All replies treated in confidence. Submit detailed resume to: Box 59-156, care Paper Trade Journal.

TF

TECHNICAL SALESMAN

To sell industrial starches and resins to paper and corrugating industries for leading paper supplier.

Challenging and rewarding opportunity for imaginative salesman with B.S. in paper technology or general chemistry. Must like technical service as well as sales. Must be willing to relocate and travel. Some experience preferred.

Good chance for advancement for person with management potential in research minded expanding company.

For information send resume to G. M. Prust.

A. E. Staley Manufacturing Co.

Decatur, Illinois

J-20

POWER PLANT ENGINEER

Graduate Mechanical or Electrical Engineer for new engineering and development work. Job will require some travel to operating units in North America. Will be located in Southeastern U. S. A.

Applicants must have experience with high pressure turbo-generators and boilers. Hydro-electric experience desirable as well as test course experience with manufacturer of electrical or steam equipment. Age up to 40 years. Good salary and promotional opportunities. Our employees know of this ad. All replies treated in confidence. Submit detailed resume to: Box 59-157, care Paper Trade Journal.

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BARGAINS

IMMEDIATE DELIVERY

1—128" S & S 10-Roll Calender Stack. Kiag Roll 24" Dia. Heavy box frames, full set of doctors. Excellent Condition.
1—86" Farrel 3-Roll Calender Stack. Anti-friction Bearings. Excellent Condition.
26—36" x 72" Complete Dryer Section, Stack, Drives, Etc.
10—48" x 150" Pusey & Jones Dryers.
1—84" Kamyr Machine, Complete. 75 ton per day output.
1—E. D. Jones Majestic Jordon No. A-482. New S.S. Fillings. Like New.
1—E. D. Jones Imperial Jordon, S.S. Fillings
1—Noble & Wood Mammoth Jr. Jordon, S.S. Fillings
1—Monarch Jordon, Model SP, Serial #21095, no fillings. Direct connected to a 75 H.P. G.E. 400 RPM Motor.
1—No. 3 Jones Pulpmaster, Late Type. Complete Drive.
1—Dilts #1 Hydrafiner, Anti-friction Bearings.
1—48" Seybold-Dayton Trimmer and Cutter with 5 H.P. 220/440 Volt Motor.
1—A.P.P. Rotary Centrifugal Pulp Screen. 40" Dia. x 42" Face. Serial #1274227. Like new. Capable of 40 ton groundwood pulp per day.
1—Trimbey Senior Rotary Screen.
2—Impco Rotary Pulp Screens.
3—No. 3 Impco Rotary Knotter Screens. S.S. Plates.
1—110" Pusey & Jones 2-Drum Winder. A.F. Bearings.
1—Hudson Sharpe Toilet Tissue Converting Machine. Ser. #2123. 8 Spare Mandrel Bars.
1—42" Dia. x 110" Face Pope Type Reel. Excellent Condition.
1—25" Dia. x 156" Face Sandusky Suction Couch, Bearings & Stands.
1—22" Dia. x 138" Perforated Face Sandusky Suction Couch, Bearings & Stands.
1—10-Knife Carthage Chipper with Anti-friction Bearings.
1—54" Dia. x 48" Face Valley Iron Tub Beater.
1—Dilts 53" Dia. x 60" Face—2000 lb. Iron Tub Beater. S.S. Extractor Type Hood.
1—Seybold Knife Grinder. Size G. 84" Table. Serial #4X802.
1—Sandy Hill Sulphur Burner. Complete.
2—#2 Bird Screens with Copper Vats & S.S. Plates.
1—Tugboat Annie Pulper.
1—Worthington Air Compressor, Model 5TR2. 2-Stage, Air Cooled. 5 H.P.
1—C.P. 12 x 10 Air Compressor, 100# Pressure.
1—I.R. 7 x 7 Air Compressor. 100# Pressure.
1—No. 244 Mattison 18" Core Cutting Saw —5 H.P. 3450 RPM, 3/60/220-440 volt.
1—90 H.P. Terry Turbine, Type G-4000/1000 RPM. For Paper Machine Drive. Complete.
1—No. 2 Jones Pulper. A.F. Bearings. Spare Worm.
1—36" Putman H.D. Lathe—15' Centers.
1—24" x 6' L & S Geared Head, H.D. Machine Lathe. Taper Attachment, Hollow Spindle, Motorized.
1—A.C. 75 H.P. 3/60/220-440 Volt, 720 RPM. T.E.F.C. Type ARZX Motor.
1—A.C. 60 H.P. 3/60/220-440 Volt, 720 RPM. T.E.F.C. Type ARZX Motor.
1—G.E. 100 H.P. MG Set, 250 Volt D.C.
1—250 H.P. Ingersoll Rand Diesel Engine Generator Set—G.E. Generator, 150 KW, 480 Volts, 720 RPM.

Save over 50% on your requirements for New Jordon Fillings. S.S., Bronze & Carbon Steel.

Gear Reducers, P.I.V. Drives, Generators, B.B. Pumps, Stock Pumps, Plunger Pumps, Etc.

1000 Electric Motors from ¼ H.P. to 600 H.P. in Stock.

The above is but a small part of the inventory we carry. We can furnish you with almost anything in the line of paper mill, electrical and machine shop equipment.

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GOUVERNEUR, NEW YORK
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BEATERS—CAST IRON TUBS
1—750 lb Valley Iron Works; 38" x 48" roll

CALENDER STACKS
1—82" Lobdell 5 roll
1—86" Lobdell 5 roll
1—86" P & J 7 roll
1—100" Rice Barton 9 Roll
1—115" B-C 7 roll
1—124" B-C 5 roll
1—124" B-C 6 roll
1—128" Downingtown 7 roll

CHIPPERS
1—96" Murray 6 knife; A-F Brng.

COMPLETE MACHINES
3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 3 cyl. 50" trim Board Mill complete
1—M & W 72" Fourdrinier paper machine

CYLINDER MOLDS
2—63" face x 36" dia w/rubber couches
1—104" face x 36" dia
1—107" face x 48" dia; A-F Brng
2—111" face x 36" dia; A-F Brng
1—132" face x 42" dia; A-F Brng
1—136" face x 54" dia; SS covering

CYLINDER WET ENDS
Downingtown single cylinder; 99" face x 48" dia.; 18" dia. couch; 2 sets main presses.

DRIVES—ENCLOSED RIGHT ANGLE
1—Michigan 92½ h.p. ratio 10.1 to 1
1—50 h.p. Reliance VS with MG set & controls; 850-1200 r.p.m.
2—B-C 75 h.p. Ratio 5 to 1
1—Beloit 65 h.p. Ratio 2.88 to 1
1—Phila. 28 h.p. Ratio 10.56 to 1
1—M&W 25 h.p. Ratio 6.326 to 1
2—B-C 25 h.p. Ratio 6.25 to 1

DRYERS—HYDROSTATICALLY TESTED
18" Dia.: 1—90" face w/A-F Brng
24" Dia.: 38—46" face; Chrome plated
28" Dia.:
3—70" face w/gears & bearings
3—73" face w/gears & bearings
3—76" face w/gears & bearings
3—77" face w/gears & bearings
2—84" face
2—84" face w/accessories
2—160" face w/rope carriers
36" Dia.:
1—42" face
2—44" face
2—46" face
4—70" face w/gears & bearings
11—72" face w/gears & bearings
1—74" face Lukenweld w/A-F Brng
1—74" face w/gears & bearings
3—75" face w/gears & bearings
9—76" face w/gears & bearings
1—77" face w/gears & bearings
1—78" face w/gears & bearings
2—80" face
5—84" face
4—88" face w/gears & bearings
18—90" face; complete section
1—138" face
10—160" face
42" Dia.:
8—88" face w/gears & bearings
24—102" Face; Complete Section
1—106" face
1—110" face
40—118" face; complete section
1—120" face
1—160" face
48" Dia.:
58—46" face; chrome plated
1—52" face w/gears & bearings
1—82" face w/gears & bearings
5—90" face w/gears & bearings
20—86" face; complete section
10—100" face w/bearings
24—110" face w/frames & bearings
12—123" face w/gears, frames & bearings
1—128" face

EMBOSSERS
1—80" Hudson Sharp; A-F Brng
2—62" Textile Machinery Co.; w/drives

FILTERS—STEEL VATS
1—6' face x 3' dia Dorr-Oliver
1—10' face x 8' dia Dorr-Oliver chemical sludge filter
1—10' x 5' dia. IMPCO—rubber lined

FLAT SCREENS
2—12 Plate IMPCO w/Dunbar Drives
3—14 plate Shartle; S.S. Vats
1—4 plate Tailing Screen

INLETS & HEADBOXES
1—156" New Valley w/36" headbox; monel lined
1—112" Valley w/8" distributing roll

JORDANS
1—Jones Majestic
2—Appleton #1 w/A-F Brng
2—N & W Pony w 75 h.p. motors

LABORATORY EQUIPMENT
1—24" Waldron Coater & Embosser

MOTORS—3 PH. 60 CYCLE
1—100 hp GE; 440 v; 695 rpm
2—100 hp GE; 440 v; 430 rpm
1—350 hp GE; 2200 v; 720 rpm; Synch

PAPER MACHINE DRIVES
1—De Laval 100 h.p. steam turbine w/reducers
1—West. 300 h.p. 2200 volt motor w/all controls and accessories

PUMPS—OPEN IMPELLER END SUCTION
1—Shartle 8 x 16 Triplex
1—Frederick 1800 g.p.m. 36 ft. head
1—Frederick 750 g.p.m. 80 ft. head
1—Frederick 400 g.p.m. 20 ft. head
1—Frederick 750 g.p.m. 35 ft. head
3—De Laval 1200 g.p.m. 25 ft. head
1—Economy 1000 g.p.m. 50 ft. head—vertical
1—Economy 600 g.p.m. 40 ft. head—vertical
1—Economy 400 g.p.m. 30 ft. head—vertical
1—Buffalo 2250 g.p.m. 43 ft. head
1—MDC 1500 g.p.m. 40 ft. head

REELS
1—86" Downingtown two bowl
1—100" Kohler automatic two arm unwind reel; 60" dia rolls; new condition
1—116" Downingtown two bowl A/F Brngs.
1—123" Beloit—2 bowl
1—150" B & S pope type w/Reliance drive

REFINERS
2—#1 Claflin; A-F Brng
1—24" Downingtown Weiner; new
1—F24 Bauer w/50 hp motor
2—Shartle Miami Size R4 Cyclifiners w/150 h.p. motors

ROLL GRINDERS—COMPLETE W/MOTORS
1—208" x 32" Farrel w/crowning device

ROTARY SCREENS
10—Bird #3A, Model 100 w/SS or copper vats
1—Jones Leithwalk copper lined.

SHEETERS—DOUBLE KNIFE
1—64" Dillon
1—80" B-C heavy duty board model
1—87" Hamblet w/layboy
1—157" Masson-Scott; like new

SHEETERS—SINGLE KNIFE
1—60" Hamblet
1—65" Kidder w/elec. eye and layboy
1—71" Hamblet
1—82" Hamblet w/layboy
1—105" Hamblet
1—110" Hamblet w/layboy

SLITTERS & WINDERS
1—42" Essex duplex; 30" dia rewind
2—42" Cameron Model 6; 24" dia rewind
1—42" Cameron Model 40-1A; 22" dia rewind
2—48" Langston duplex; 24" dia rewind
1—52" Cameron Model 6; 24" dia rewind
1—60" Hudson-Sharp; plastic coated paper
1—60" Langston; shear cut; 30" dia rewind
1—60" Kidder Model SH; 40" rewind
1—62" Cameron Model 9-5; 24" dia rewind
2—62" Cameron Model 6; 24" dia rewind
1—62" Cameron Model 8; 24" dia rewind
1—62" Cameron Model 6; 30" dia rewind
1—62" Cameron Model 8; 36" dia rewind
1—70" Center Winder w/variable speed motor
1—72" Johnston; 36" rewind; like new
1—72" Cameron Model 26-3A duplex
1—72" Beloit shear cut; 40" dia rewind
1—72" Hudson-Sharp high speed automatic
1—82" Langston Shear cut; 45" dia rewind
1—86" Cameron Model 8-10; 42" dia rewind
1—110" Cameron Model 18; 60" dia rewind
1—124" Cameron quick change slitter assembly
1—136" Langston Type DA; A.F. Brng; 60" dia rewind
1—148" Langston shear cut; A-F Brng; 60" dia rewind
1—194" Cameron Model 19; A-F Brng
1—92" Cameron Model 28-3 w/motor
1—72" Cameron Model 10 w/constant tension backstand & water cooled brake
1—72" Cameron Model 10 w/constant tension backstand & water cooled brake; shear cut

STOCK CLEANERS
2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2" & 6" bronze
9—Vortraps; 4" S.S.

SUCTION COUCH ROLLS
1—108" drilled face x 22" dia Sandusky
1—116" drilled face x 18" dia Sandusky
1—122" drilled face x 18" dia Sandusky
1—122" drilled face x 25" dia Sandusky
1—135" drilled face x 22" dia Sandusky
1—192" drilled face x 30" dia Millspaugh

SUCTION PRESS ROLLS
1—166" drilled face x 19" dia Millspaugh; used 2 mos; A.-F. Brng; rubber covered
1—194" drilled face x 30" dia Millspaugh

SUPERCALENDERS
2—30" Norwood 4 roll
1—63" Norwood 8 roll; A-F Brng
1—65" Norwood 8 roll; A-F Brng
1—92" Norwood 7 roll w/drive

THICKENERS & SAVEALLS
1—Bird 6A w/motor
2—Shartle; Cyl. 36" x 108"; rubber couch; w/7½ h.p. motor

TRIMMERS—POWER BACK GAUGES
1—57" Seybold Precision
1—74" Seybold 12-Z
3—84" Seybold 12Z w/motor & air table
1—84" Seybold Dayton w/motor
1—94" Seybold Precision w/air table
1—74" Seybold 12-Z w/air table

VACUUM PUMPS
2—H-4 Nash w/10 hp motors
1—L-5 Nash w/20 h.p. motor
4—#2, #3, #4 & #6 Nash Hytors
1—7 x 10 Connersville

YANKEE DRYERS
1—132" face x 10' dia Beloit; 35 psi

WAXERS & COATERS
1—54" Mayer w/motor
1—65" Mayer w/drive
1—76" Mayer

Help Wanted

PROCESS ENGINEER

A recognized leader in the manufacture of enamel book papers is considering applications for two positions as Process Engineers.

Our Process Engineers are part of the mill technical staff working closely with production personnel on problems involving quality control, wastes and efficiencies. These engineers are assigned to specific areas in the mill such as Groundwood pulping, Stock blending, Papermaking or Coating, and are expected to provide guidance and technical advice to the operating superintendents.

Paper Technology, Chemistry or Chemical Engineering background is preferred. Two or three years experience in Process Engineering or mill technical service work is necessary for this position.

These positions are located in Central Wisconsin.

Please give full details and resume in your first letter so that interviews can be arranged. Send to Box 58-195 c/o Paper Trade Journal. J-20

MACHINE TENDERS OR TOUR FOREMEN

A LARGE TWO MACHINE HIGH GRADE KRAFT BOARD MILL LOCATED IN MIDWEST HAS AN OPENING FOR A TOUR FOREMAN. SALARY OPEN. WRITE STATING AGE AND EXPERIENCE TO BOX 59-203 CARE PAPER TRADE JOURNAL.

J-27

ASSISTANT PAPER LABORATORY SUPERVISOR

We are seeking an experienced color technician to act as assistant supervisor in our paper laboratories. This is an excellent opportunity to join our expanding customer service laboratories. Please send resume including education, experience and salary requirements.

CIBA Company, Inc.
Paper Department
Route 208, Fair Lawn, New Jersey

J-20

CHEMICAL ENGINEERS

Bowaters Southern Paper Corporation

South's largest Newsprint Manufacturer has permanent positions available for Chemical Engineers. Mill's Technical Staff now being enlarged because of extensive expansion program. Degree in Chemical Engineering from accredited college required. Minimum of two to five years experience in Kraft and/or Newsprint Mills essential. Starting salary based on qualifications with periodic merit increases. Complete insurance, retirement and vacation programs established. All replies will be answered and treated in confidence. Reply immediately submitting summary of experience to:

Industrial Relations Department
BOWATERS
SOUTHERN PAPER CORPORATION
Calhoun, Tennessee

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SALES APPLICATION ENGINEER WANTED—For Sales Department of converting machinery builder in New York State. Prefer mechanical engineering background. Varied, interesting, and growing product line in paper, film and foil machinery. Offers excellent growth opportunity. Reply to: W. D. Haskell, Sales Manager, The Black-Clawson Company, Dilts Division, Fulton, New York. J-13

Help Wanted

MAN FOR INDUSTRIAL PLANT

Technical training in Sanitary and Chemical Engineering. Experience preferred, but not necessary. Salary open.

Send resume to Personnel Director,

Hamilton Paper Company
Miquon, Pennsylvania

J-13

PAPER MILL SUPERINTENDENT

Specialty mill in New England developing new grades requires man with at least 5 years operating experience, technical knowledge desirable but not essential. Excellent opportunity in growing organization. Box 59-202 care Paper Trade Journal.

A-3

PAPER MILL SUP'T.

Take full charge of 1 Yankee Fourdrinier machine running facial tissue. Must have experience. Reply stating experience, age and salary expected to Box 59-185 care Paper Trade Journal. J-13

PRODUCT DEVELOPMENT MANAGER—MARKETING

Large multi-plant fine paper manufacturer with excellent national reputation seeks experienced man to head up staff produce development activity in marketing division—reporting directly to vice-president—sales, in the home office. Multi-million dollar growth program provides unusual opportunity for advancement. Excellent salary, bonus, and numerous fringe benefits. Prefer family man in 30 to 40 year age bracket with degree in Pulp & Paper Technology or Chemical Engineering and several years experience in fine paper manufacturing. Sales experience desirable but not absolutely necessary if candidate has prsonality and flair for selling and sales staff work. Position entails market research, technical correspondence, liaison between sales and manufacturing, product development and related staff functions. Moderate amount of traveling required. Home office and plant in excellent eastern location, ideal for work and recreational activities. Apply in writing giving full detals, qualifications, photograph, and compensaton requirements. All replies will be considered confidential and will receive prompt response. Write to Box 59-209 care Paper Trade Journal.

J-13

GOVERNMENT BIDS

PROPOSALS
FOR FURNISHING

PAPER AND ENVELOPES FOR THE U.S. GOVERNMENT PRINTING OFFICE

SEALED PROPOSALS will be received until 10 a.m. e.d.t., July 13, 1959, in the room of the Joint Committee on Printing, in the Capitol, Washington, D.C., for furnishing the paper for the public printing and binding, and blank paper and plain envelopes for the use of the Government departments and establishments in the District of Columbia, for the terms of 3 months for paper and 6 months for envelopes beginning August 1, 1959, deliveries to be f.o.b. Government Printing Office Warehouse, or warehouse siding, Washington, D.C. The proposals will be opened in the presence of and the award of contracts made by the Joint Committee on Printing to the lowest and best bidders for the interest of the Government whose bids are in conformity with requirements of the proposals. The committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part, if, in its opinion, such action would be in the interest of the Government.

Blank proposals containing the instructions, schedule, and specifications may be obtained by addressing Raymond Blattenberger, Public Printer, Washington, D.C.

Contracts will be entered into for supplying the quantities required, whether more or less than the estimates, as provided in paragraph 26 of the proposal for paper and paragraph 24 of the proposal for envelopes.

The approximate estimated quantities set forth in detail in the schedule comprise:

PAPER

2,030,000 pounds machine-finish book paper; 30,000 pounds machine-finish book end paper; 85,000 pounds english-finish book paper; 10,812,000 pounds offset book paper; 235,000 pounds antique book paper; 210,000 pounds supercalendered book paper; 2,066,000 pounds coated book paper; 729,300 pounds mimeograph paper; 45,000 pounds white copy paper, Dry Electrostatic Process; 425,000 pounds duplicator copy paper; 2,568,100 pounds writing paper; 8,721,113 pounds writing paper for offset printing; 2,500 pounds 100% fine writing paper; 70,000 pounds map paper; 357,000 pounds manifold paper; 370,000 pounds bond paper; 1,463,050 pounds bond paper for offset printing; 10,000 pounds 100% bond paper; 115,000 pounds translucent bond paper for offset printing; 255,000 pounds ledger paper; 735,000 pounds ledger paper for offset printing; 40,000 pounds 100% ledger paper for offset printing; 1,050,000 pounds index paper for offset printing; 50,000 pounds 100% cream-white index paper for offset printing; 365,000 pounds antique-finish cover paper for offset printing; 40,000 pounds litho-coated cover paper; 11,000 sheets cloth-lined cover paper; 15,000 pounds manila paper; 200,000 pounds kraft paper; 410,000 sheets gummed paper; 40,000 ounds blotting paper; 9,000 pounds oiled manila tympan paper; 30,000 pounds manila tag board; 5,000 pounds wallet board; 20,000 pounds jute tag board; 10,000 pounds manila cardboard; 70,000 sheets railroad board; 115,000 pounds tan board; 3,670,000 pounds postal card paper; 10,000 pounds bristol board; 50,000 sheets pressboard; 225,000 pounds newsboard; 313,000

313,000 { pounds binder's board / pounds chestnut cover board.

ENVELOPES

The approximate estimated quantities set forth in detail in the schedule comprise:

34,775,000 kraft; 13,895,000 writing, chemical wood, white and colored; 95,000 100% writing, white; 530,000 25% bond, white; 310,000 100% bond, white; 30,000 ledger, white.

By direction of the Joint Committee on Printing.

RAYMOND BLATTENBERGER,
Public Printer.

WASHINGTON, D.C.
June 22, 1959.

J-13

Buy U. S. Savings Bonds

Help Wanted

WANTED—TOUR BOSS for two machine high grade folding box board mill in New England Area. Age 30-45. Address Box 59-193 care Paper Trade Journal. J-10

Situations Wanted

EXECUTIVE - WORK MANAGER

—in manufacture of boards & papers; their conversion; and film. Wishes change for challenging opportunity. Successful record in production; organization; labor relations, & development. Address Box 59-137 care Paper Trade Journal. J-27

PAPER MILL EXECUTIVE

with unusually broad background in design, construction and development of paper mills desires association in general management position with small or medium tonnage paper manufacturing or converting operation. Particular interest in opportunity for investment. Engineering Graduate. Presently employed. Address Box 59-194 care Paper Trade Journal. J-13

TECHNICAL EXECUTIVE—20 years of experience in paper coating and adhesives and specialty papers, seeks challenging opportunity. Address Box 59-201 care Paper Trade Journal. A-3

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1—Farrell Roll Grinder, 30" Diameter x 130" Face. Complete. Excellent Condition.

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IMMEDIATE DELIVERY

DOWNINGTOWN 7 CYLINDER 124" BOARD MACHINE

Trim—108" - 112"
Speed—Up to 550 FPM
Production—125-150 tons/day

INSPECT IN OPERATION

Complete Specs and Price on Request

Ross Paper Machinery Co.

265 Passaic St.
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Humboldt 2-2177

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FOR SALE

240" Fourdrinier with 80 ft. wire. Last operated 1200 fpm with slice. 2 presses with 36" diameter Beloit suction rolls. 9 roll, 228" calender. Pusey & Jones reel takes 60" roll. Type 20 Cameron, 238" face. Also felt rolls for press section. Guides for press section. Dryer guides. Dryer frame. Considerable other equipment. At fraction of cost of new machine.

Frank H. Davis Company, Inc.
175 Richdale Avenue, Cambridge, Massachusetts

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"CADY" ELECTRIC PAPER TESTER

PLEASE WRITE FULL DETAILS CONDITION, PRICE ETC. TO

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1201 E. FIRST AVE., DENVER 18, COLORADO

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For Sale

FOR SALE

2—Noble & Wood 56" wet machines
#1 Shartle Miami Jordan
#2 Shartle Miami Jordan
72" Hamblet cutter
36 x 72" Shartle thickener
Shartle Selectifier Screen
2 Perkins rag cutters
20 dryers 36 x 72"
65 dryers 36 x 84"
42" type 6 Cameron
42" Johnson slitter
52" type 10-5 Cameron
72" type 10-5 Cameron slitter
75" type 10-11 Cameron slitter, rewind 36"
92" type 10 Cameron
108" type 18 Cameron, rewind 60" with roll ejector
84" Seybold precision, with air table and automatic spacer
84" Seybold
64" Seybold Dayton
54" Seybold with finger type back gauge
30" Fales slitter
50" type 6 Cameron
60" Langston slitter
82" type B Langston, rewind 36"
84" Pusey & Jones two drum winder, rewind 42"
36" Beck sheeter
60" Hudson Sharp embosser
32" Waldron embosser
100" Black & Clawson reel with 42" diameter drum, takes 60" roll
106" Pope reel, 36" drum, takes 57" roll
42 x 118" Pope reel, takes 57" roll

Frank H. Davis Company, Inc.
175 Richdale Avenue, Cambridge, Mass.

J-13

FOR SALE

3 cylinder, 68" trim machine with 3 sets of primary rolls. 1 main press, anti-friction. 1—28" dryer and 40—36" dryers. 5 roll calender. Upright reel. Cameron winder. Drive units. Prime mover consisting of 6¾" Reeves 75 HP motor. Jordan, pumps, agitator drives which are available. Machine all set up on original foundation can be inspected. Photographs available.

Frank H. Davis Company, Inc.
175 Richdale Avenue, Cambridge, Massachusetts

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Buffalo Pumps, Inc. ....Cover 3
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Cameron Machine Co. ..... —
Carthage Machine Co. 68
Central National Corp. Front Cover
Central Soya Co. 59
Chain Belt Co. ..... —
Ciba Company ..... —
Cities Service Oil Co. ..... —
Clark-Aiken Company ..... —
Classified Advertising 71
Clearing House 71
Cleveland Crane & Engrg. Co. —
Columbia-Geneva Steel Div., U. S. Steel Corp. ..... —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. ..... —
Combustion Engrg. Co. ..... —
Conveyair Sales Ltd. ..... —
Corn Products Sales Co. ..... —
Crane Co. 70
Curtis-Wright Corp. 57

Davis, Frank H., Co., Inc. ... 75
DeZurik Corporation ..... —
Dewey & Almy Chem. Co. ... —
Diamond Alkali Co. 58
Dierks Paper Co. ..... —
Dilts Machine Works 4
Dodge Mfg. Co. ..... —
Dorr-Oliver .....30 & 31
Dow Chemical Co. 21
Dowell, Inc. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. 63
du Pont, E. I., de Nemours & Co., Dyestuffs Dept. ..... —
Electrochemical Dept. ..... —
Industrial & Biochem. Dept. .. —
Pigments Dept. 10

Eaton Manufacturing Co. .... —
Ebasco Services, Inc. ..... —
Egan Frank W., & Co. 24
Electric Mchy. Mfg. Co. ..... —
Elixman Paper Core Co. 70
Elwell-Parker Elec. Co. ..... —
English China Clays Sales Corp. —
Executone Inc. ..... —
Export Supplement .....S-1 to S-6
Extremultus, Inc. ..... —

FabriValve Company ..... —
Fairbanks Morse & Co. ..... —
Falk Corporation ..... —
Fibrecast Company ..... —
Fife Manufacturing Co. 70
Fisher Governor Co. ..... —
Fitchburg Screen Plate Co. ... 69
Foxboro Co. ..... —
Frederick Iron & Steel Co. .. —

Garlock Packing Co. ..... —
Gaspesia Sulphite Co. Ltd. ... —
Gates Rubber Company ..... —
Geigy Chemicals Corp., Geigy Dyestuffs Div. ..... —
General Dyestuffs Co. ..... —
General Electric Co. ..... —
General Mills, Inc. 69
General Tire & Rubber Co. ... —
Gibbs-Brower Co. ..... —
Gilbert & Nash Co. ..... —
Glidden Company ..... —
Goodyear International Corp. . —
Goodyear Tire & Rubber Co. .. —
Gottesman & Co. ...Front Cover
Goulds Pumps ..... —
Grace, W. R., & Co., Dewey & Almy Chem. Div. ..... —
Graver Tank & Mfg. Co. .... —
Grinnell Co., The ..... —
Gruendler Crusher & Pulv. Co. —
Gulf Oil Corporation ..... —
Gurley W. & L. E. ..... —

Hamblet Machine Co. 68
Harbison Walker Refractories . 3
Heimbach, Thomas J. ..... —
Hendrick Mfg. Co. 69
Hercules Powder Co. ..... —
Hills-McCanna Co. ..... —
Hooker Chemical Corp. ..... —
Houghton & Company ..... —
Huber, J. M. Corp. ..... —
Hudson Sharp Machine Co. .. 55
Hungerford & Terry, Inc. .... —
Hunt, Rodney ..... —
Huyck, F. C. & Sons 23

Improved Machinery, Inc. ..... —
Ingersoll-Rand Co. ..... —

Jagenberg Werke ..... —
Jenkins Brothers ..... —
Johns-Manville Corp. ..... —
Johnson Corp., The 68
Johnson, Alvin H., Co. ..... —
Jones, E. D., Corp. 29
Jones & Laughlin Steel Corp. —

Kalamazoo Tank & Silo Co. ... —
Kidder Press Co. ..... —
Kinney Engineers Inc. 65
Knox Woolen Co. ..... —
Koppers Co., Inc. ..... —

Langston, Samuel M., Co. .... —
La Papeterie ..... —
Lawson Company ..... —
Layton-Greenfield Inc. ..... —
Lestoil, Inc. ..... —
Lhomme et Avgy ..... —
Link Belt Co. ..... —
Lockport Felt Co. ..... —
Lockwood's Directory ..... —
Lockwood Greene Engineers .. —
Lodding Engineering Co. ... 54
Lukon, Inc. ..... —
Lunkeinheimer Co. ...Back Cover
Lyddon & Co. ..... —

Magnus Metal Corp. ..... —
Main, Charles T., Inc. 65
Manchester Machine Co. ..... —
Marathon—A division of American Can ..... —
Martel, Catala et Cie ..... —
Mead Pulp Sales, Inc. ..... —
Merrick Scale Co. ..... —
Metalsalts Corp. ..... —
Millspaugh Ltd. ..... —
Minneapolis-Honeywell 50
Mixing Equipment Co. ..... —
Monsanto Chemical Co. ..... —
Moore & White Co. ..... —
Morden Machines Co. ..... —
Mt. Vernon Mills Inc. 8
Murray, D. J., Mfg. Co. ..... —

Nalco Chemical Co. ..... —
Nash Engineering Co. ..... —
National Lead Co., Magnus Metal Div. ..... —
National Starch & Chem. Corp. —
National Tube Div., U. S. Steel Inc. ..... —
New Jersey Zinc Co. 39
Nichols Eng. & Research Corp. —
Nopco Chemical Co. ..... —
Norgren, C. A. Co. ..... —
Northeastern Paper Sales 63
Norton Co. 67

Oakite Products Inc. ..... —
Ohio Injector Co. ..... —
Osborne Paper Mill Equip. Corp. ..... —

Paper Conv. Mch. Co. 60
Parsons & Whittemore ..... —
Patton Mfg. Co. ..... —
Penick & Ford 39
Penn. Ind. Chem. Corp. ..... —
Pennsalt Chem. Corp. ..... —
Perkins, B. F., & Sons, Inc. .. —
Perkins Goodwin Co. ..... —
Permutit Co., Div. of Pfaudler Permuitit Inc. ..... —
Pioneer Paper Stock Co. ... 67
Potdevin Machine Co. 70
Powell Valves ..... —
Price & Pierce, Ltd. ..... —
Pusey & Jones Corp. ..... —

Railway Supply & Mfg. Co. ... —
Record Fdy. & Mch. Co. .... —
Red Ray Mfg. Co. ..... —
Rhoads, J. E., Sons Co. ..... —
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..... —
Ross, J. J., Co. ..... —
Ross, J. O., Engrg. Co. ..... —
Ross Midwest Fulton Corp. ... —
Ross Paper Machinery Co. 73 & 75
Ruderman Machinery Exchange .....72 & 75
Rust Engineering Co. ..... —
Ryerson, Jos. T., & Son ..... —

Sandoz, Inc. ..... —
Sandwell International, Ltd. .. —
Sandy Hill Iron & Brass Works —
Scapa Dryers Inc. 14
Seaboard Air Line R. R. Co. .. —
Shartle Div., Black-Clawson Co. 4
Shawinigan Resins Corp. ..... —
Sheffeld Corp. ..... —
Shell Chemical Corp. ..... —
Shuler & Benninghofen 40
Shy, C. D., & Company ..... —
Signode Steel Strapping Co. .. —
Sinclair Company ..... —
Sirrine, J. E., Co. ..... —
SKF Industries ..... —
Smidth, F. L., & Co. ..... —
Socony Mobil Oil Co. .....12 & 13
Sonoco Products Co. ..... —
Southworth Machine Co. ..... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. ..... —
Stadler Hurter & Co. ..... —
Staley Mfg. Company 16
Stanley Steel Strapping ..... —
Stebbins Engrg., Co. ..... —
Stephens-Adamson Mfg. Co. .. 9
Stein, Hall & Co. ..... —
Stone & Webster Eng. Corp. —
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co. ..... —
Sunday, George M., Assoc. ... 71

Taylor Instrument Co.'s ..... —
Taylor Stiles & Co. ..... —
Taylor-Wharton Company .... —
Tennessee Coal & Iron Co. ... —
Tennessee Corp. ..... —
Testing Machines ..... —
Texaco, Inc. ..... —
Texas Gulf Sulphur Co. ..... —
Thermal Equipt. Grp. ..... —
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. 75
Thurso Pulp & Paper Co. .... —
Titanium Pigment Corp. 2
Towmotor Corp. ..... —
Turner Halsey Co. 8

United Engrg. & Fdy. Co. ..... —
U. S. Industrial Chem. Co. Div. of National Distillers & Chem. Corp. ..... —
U. S. Steel Corp. ..... —
United States Steel Export ... —
United States Steel Supply Co. —

Valley Iron Works 53
Vanderbilt R. T., Co. ..... —
Virginia Smelting Co. 61
Voith, J. M., G. m. b. h. ..... —

Waldron, John Corp. ..... —
Waldorf Industrial Controls .. —
Walworth Co. ..... —
Weber, H. G., Company ..... —
West End Chemical Div., Stauffer Chem. Co. ..... —
Westvaco Div., Food Mchy. & Chem. Corp. ..... —
West Virginia Pulp & Paper Co. ..... —
Weyerhaeuser Timber Co. .... —
Wheeler Roll Co. ..... —
Williams Apparatus Co. ..... —
Williams-Gray Co. ..... —
Witco Chemical Co. ..... —
Woodpulp, Inc. ..... —
Wood's, T. B., Sons Inc. 70
Wyandotte Chem. Corp. ..... —
Wyatt Metal & Boiler Works . 41

Yarnall-Waring Co. 11

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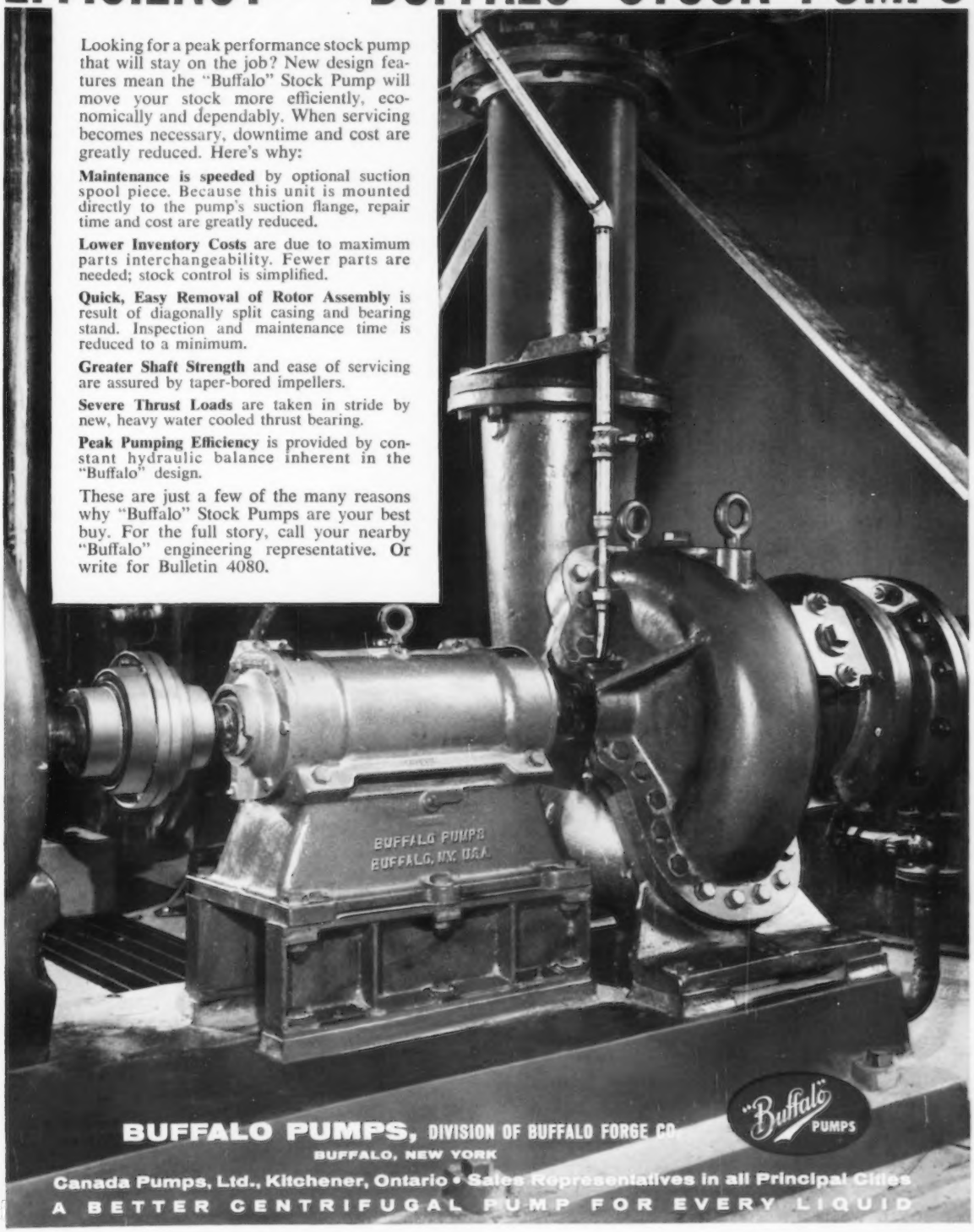

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